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City of Birmingham.

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# REPORT

OF THE

MEDICAL OFFICER OF HEALTH

FOR THE YEAR

1928.

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BIRMINGHAM:  
TEMPLAR PRINTING WORKS, EDMUND STREET.

1929.







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PUBLIC HEALTH DEPARTMENT,  
THE COUNCIL HOUSE,  
BIRMINGHAM.

TO THE CHAIRMAN AND MEMBERS OF THE PUBLIC HEALTH COMMITTEE.

MR. CHAIRMAN, LADIES AND GENTLEMEN,

The data set out below indicate that the year 1928 was a satisfactory one in respect of the general health of the population. The death-rate was the lowest hitherto recorded in the City and associated with this was a relatively low death-rate from bronchitis, pneumonia and the respiratory diseases in general. The infant mortality also reached the lowest figure so far recorded in Birmingham ; and further, for the second time only this figure dropped to the level of the infant mortality for England and Wales as a whole. Both these low rates were no doubt in part a reflection of the sunny and genial weather with which Birmingham, like the country at large, was favoured during an unusually large portion of the year. In the maternity and child welfare section of the report an analysis will be found of the infant mortality over a period of years considered in relation to district and to cause of death.

While the general death-rate and the infant mortality reached the lowest points so far recorded, the same has to be said, though not with the same satisfaction, in relation to the birth-rate, which dropped to 17.6 per thousand of the population, from the figure—17.8—recorded for 1927.

During the year the City Council have considered the re-drafting of the bye-laws for houses let in Lodgings, in order to increase the powers for dealing with this very difficult and generally unsatisfactory class of dwelling. The revised bye-laws did not come into effect during the year under review.

The training course for health visitors opened jointly by the University of Birmingham and the Public Health Committee in the autumn of 1927, was established on a more permanent basis early in 1928, and has proved most successful in encouraging a supply of properly trained health visitors, both for Birmingham and for neighbouring areas taking part in the scheme.

Attention may be drawn to the report, set out in the maternity and child welfare section, on deaths from pneumonia in children under five years of age. It will be seen that the cases involved mainly the poorer houses, and that the children picked out by the disease were those subject to recurrent catarrh in families where the parents in an unusually high proportion showed conditions of chronic ill-health. The report is significant in its implication that an indirect attack on the disease may nevertheless be effective, in that the improvement on the one hand of the environmental conditions implied in the alterations to housing, to general sanitation, and to scavenging, and the improvement on the other hand of the personal health of the child under the child welfare scheme and of the parent under the national insurance scheme will remove conditions at present encouraging the prevalence of the disease.

I am

Your obedient servant,

H. P. NEWSHOLME,

*Medical Officer of Health.*

*June 24th, 1929.*



# City of Birmingham.

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## REPORT OF THE MEDICAL OFFICER OF HEALTH For the year, 1928.

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### SUMMARY OF STATISTICS.

Area (in acres), 46,687.

Population (Census 1921), 919,444.

Estimated by Medical Officer, 1928, 976,500.

Estimated by Registrar-General, 1928, 968,600.

Number of inhabited houses (1921), 190,459.

Number of families or separate occupiers (1921), 203,813.

Rateable value, £6,675,646.

Sum represented by a penny rate, £22,231.

Extracts from vital statistics of the year 1928 :—

Births—Legitimate, 16,644.	}	Birth Rate, 17.6. (On Registrar General's figures 18.1).
Illegitimate, 578.		

Deaths, 10,667.	Death Rate, 10.9. (On Registrar General's figures 10.9).
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Number of women dying in, or in consequence of,	From sepsis, 32.
childbirth.	From other causes, 34.

Deaths of Infants under one year of age per 1,000 births :—

Legitimate, 63. Illegitimate, 111. Total, 65.

Deaths from Measles (all ages), 41.

Deaths from Whooping Cough (all ages), 163.

Deaths from Diarrhœa (under two years of age), 161.

### 1. STATISTICS.

#### POPULATION.

The local estimate of the population for 1928 has been fixed at 976,500. In view of the fact that seven years have passed since the taking of the Census, and that in many respects those years have been quite abnormal—being marked by a rapid fall in the birth-rate, a scarcity of houses, and a vast amount of unemployment—there is great difficulty in estimating the present population of the City.

The Registrar General's estimate for each year since 1921 is given below :—

1921	...	...	...	936,000
1922	...	...	...	945,100
1923	...	...	...	946,400
1924	...	...	...	946,980
1925	...	...	...	945,900
1926	...	...	...	934,300
1927	...	...	...	951,100
1928	...	...	...	968,600

There is nothing in the local conditions which would justify such variations in the estimated population as are shewn above, and for local purposes the population for 1928 has been obtained by taking the natural increase as shown by the excess of births over deaths and making an allowance from this figure in regard to migration.

### BIRTHS.

The number of babies born in 1928 was 17,222, equal to a birth-rate of 17.6 per 1,000.

#### BIRTH-RATES PER 1,000.

			Birmingham.		England and Wales.
1901-1905	...	...	30.7	...	28.2
1906-1910	...	...	28.3	...	26.3
1911-1915	...	...	25.9	...	23.6
1916-1920	...	...	22.1	...	20.1
1921-1925	...	...	20.8	...	19.9
1919	...	...	20.9	...	18.5
1920	...	...	27.6	...	25.5
1921	...	...	24.1	...	22.4
1922	...	...	21.5	...	20.4
1923	...	...	20.4	...	19.7
1924	...	...	19.2	...	18.8
1925	...	...	18.8	...	18.3
1926	...	...	18.7	...	17.8
1927	...	...	17.8	...	16.6
1928	...	...	17.6	...	16.7

The birth-rate is the lowest on record for the City, but is still 0.9 per 1,000 above that for England and Wales.

#### COMPARATIVE BIRTH-RATES IN NINE LARGEST TOWNS.

(Registrar General's Figures.)

London	...	...	...	...	...	15.9 per 1,000
Glasgow	...	...	...	...	...	22.3 "
Birmingham	...	...	...	...	...	18.1 "
Liverpool	...	...	...	...	...	21.9 "
Manchester	...	...	...	...	...	17.2 "
Sheffield	...	...	...	...	...	16.1 "
Leeds	...	...	...	...	...	15.9 "
Edinburgh	...	...	...	...	...	17.3 "
Bristol	...	...	...	...	...	16.5 "

The birth-rates in the various wards were as follows :—

	Ward.	Birth-rate.
		1928.
Central Wards	St. Paul's	24.0
	St. Mary's	27.3
	Duddeston and Nechells	22.4
	St. Bartholomew's	21.5
	St. Martin's and Deritend	22.2
	Market Hall	18.4
	Ladywood	18.9
		Average 22.1

Middle Ring	...	Lozells	...	...	...	...	16.1	Average 16.5
		Aston	...	...	...	...	19.8	
		Washwood Heath	...	...	...	...	17.5	
		Saltley	...	...	...	...	17.7	
		Small Heath	...	...	...	...	15.2	
		Sparkbrook	...	...	...	...	15.3	
		Balsall Heath	...	...	...	...	16.5	
		Edgbaston	...	...	...	...	11.4	
		Rotton Park	...	...	...	...	17.1	
Outer Ring	...	All Saints	...	...	...	...	18.2	Average 14.3
		Soho	...	...	...	...	13.1	
		Sandwell	...	...	...	...	11.5	
		Handsworth	...	...	...	...	10.2	
		Perry Barr	...	...	...	...	8.4	
		Erdington North	...	...	...	...	18.5	
		Erdington South	...	...	...	...	15.2	
		Yardley	...	...	...	...	19.9	
		Acock's Green	...	...	...	...	18.8	
		Sparkhill	...	...	...	...	17.7	
		Moseley and King's Heath	...	...	...	...	12.6	
		Selly Oak	...	...	...	...	13.2	
		King's Norton	...	...	...	...	13.3	
		Northfield	...	...	...	...	15.3	
		Harborne	...	...	...	...	12.5	

This table shows that the average birth-rate in the central wards was 22.1 in 1928, while in the suburban wards it was 14.3. Corresponding figures for the past 5 years are given in the statement below.

Average birth-rate.			Central Wards.	Middle Ring.	Outer Ring.
1924	...	...	25.2	18.2	15.4
1925	...	...	24.1	17.9	15.2
1926	...	...	24.1	17.4	14.6
1927	...	...	22.7	16.4	15.0
1928	...	...	22.1	16.5	14.3

The diagram on page 12 shows the position of the various wards and the division into "Central," "Middle" and "Outer."

Throughout this report statistics will be given relating to these groups of wards and the plan will therefore be of interest, not only in connection with the local distribution of the births and deaths, but also in other directions.

#### ILLEGITIMACY.

During 1928 there were 578 illegitimate births belonging to Birmingham; i.e., 3.4 in every 100 babies born.

The corresponding number in each year since 1921 is shown below.

			Number of illegitimate babies born.		Percentage on Total Births.
1921	...	...	823	...	3.7
1922	...	...	719	...	3.6
1923	...	...	610	...	3.2
1924	...	...	583	...	3.2
1925	...	...	589	...	3.3
1926	...	...	607	...	3.4
1927	...	...	630	...	3.7
1928	...	...	578	...	3.4

Of the 578 illegitimate babies 562 were born in the City and 16 in other places to which the mother had gone for confinement.

Of the 562 babies born in the City 274 were born in institutions, 226 being in Poor Law Hospitals.

The infant mortality rate among these illegitimate babies was 111 per 1,000 as compared with 63 per 1,000 for the legitimate. The mortality rate is lower than that recorded in 1927 which was 135 per 1,000.

The following statement shows to some extent the manner in which the illegitimate babies born in 1928 were provided for:—

Total number reported in 1928	...	...	...	...	562
Number still remaining in infirmaries, etc.	...	...	...	...	66
Number who died before a visit was paid	...	...	...	...	53
Number removed before a visit was paid	...	...	...	...	18
Number visited once at least	...	...	...	...	425
Father and mother living together	...	...	...	...	153
Father making an allowance—					
(a) Under Order	...	...	...	...	47
(b) Voluntarily	...	...	...	...	53
Father not contributing	...	...	...	...	154
No information	...	...	...	...	18

#### DEATHS.

There were 10,667 deaths registered during 1928. In 1927 the number was 11,171, and in 1926, 10,847.

Of these deaths there were 5,575 males, 5,092 females. The death-rates represented by the above figures are as follows:—

Total death-rate, 10.9 per 1,000—Males, 12.1 per 1,000.  
Females, 9.9 per 1,000.

The death-rates during the past 50 years are shown in the following table.

#### DEATH-RATES IN BIRMINGHAM AND ENGLAND AND WALES.

		Birmingham.	England and Wales.
1871-1875 (Old City)	...	25.2	22.0
1876-1880	„	22.8	20.8
1881-1885	„	20.7	19.4
1886-1890	„	20.2	18.9
1891-1895	„	20.3	18.7
1896-1900	„	20.5	17.7
1901-1905 (Present Area)	...	16.5	16.0
1906-1910	„	15.0	14.7
1911-1915	„	14.6	14.3
1916-1920	„	13.4	14.5
1921-1925	„	11.5	12.2
1919	„	13.0	14.0
1920	„	12.6	12.4
1921	„	11.3	12.1
1922	„	12.1	12.8
1923	„	11.0	11.6
1924	„	11.6	12.2
1925	„	11.7	12.2
1926	„	11.3	11.6
1927	„	11.6	12.3
1928	„	10.9	11.7

It will be noted that last year's death-rate was the lowest yet recorded and that it was 0.8 below that of England and Wales as a whole.

The Birmingham death-rate compares well with that of the other great towns, as seen from the statement appended.

#### COMPARATIVE DEATH-RATES IN NINE LARGEST TOWNS.

(Registrar General's Figures.)

London	...	...	...	...	11.6 per 1,000
Glasgow	...	...	...	...	14.8 „
Birmingham	...	...	...	...	10.9 „
Liverpool	...	...	...	...	12.8 „
Manchester	...	...	...	...	12.9 „
Sheffield	...	...	...	...	11.3 „
Leeds	...	...	...	...	12.4 „
Edinburgh	...	...	...	...	13.7 „
Bristol	...	...	...	...	11.5 „

There are still considerable variations in mortality in various wards of the City, as shown in the table below:—

#### DEATH-RATES IN WARDS.

	Ward.	Death-rate 1928.	
Central Wards	St. Paul's ... ..	14.7	Average 14.0
	St. Mary's ... ..	17.5	
	Duddeston and Nechells ... ..	12.3	
	St. Bartholomew's ... ..	12.9	
	St. Martin's and Deritend ... ..	14.1	
	Market Hall ... ..	13.3	
	Ladywood ... ..	12.9	
Middle Ring	Lozells ... ..	12.5	Average 10.8
	Aston ... ..	11.6	
	Washwood Heath ... ..	9.7	
	Saltley ... ..	9.3	
	Small Heath ... ..	9.9	
	Sparkbrook ... ..	11.7	
	Balsall Heath ... ..	12.2	
	Edgbaston ... ..	9.7	
	Rotton Park ... ..	10.7	
	All Saints' ... ..	10.5	
Outer Ring	Soho ... ..	10.7	Average 8.7
	Sandwell ... ..	9.3	
	Handsworth ... ..	9.8	
	Perry Barr ... ..	3.2	
	Erdington North ... ..	8.2	
	Erdington South ... ..	9.2	
	Yardley ... ..	7.8	
	Acocks Green ... ..	8.3	
	Sparkhill ... ..	7.9	
	Moseley and Kings Heath ... ..	9.5	
	Selly Oak ... ..	9.1	
	Kings Norton ... ..	9.7	
	Northfield ... ..	10.2	
	Harborne ... ..	8.7	

St. Mary's ward with a death-rate of 17.5 per 1,000 was the district with the worst death-rate, followed by St. Paul's (14.7) and St. Martin's and Deritend (14.1). The population of the new Perry Barr Ward is only 2,500 and any death-rate calculated in so small a population must naturally be subject to violent fluctuations and can hardly be considered as representative of the district. Of the other wards, Yardley (7.8), Sparkhill (7.9), Erdington North (8.2), Acocks Green (8.3), and Harborne (8.7) showed the smallest mortality rates.

#### GROUPS OF WARDS.

It will be noticed from the table that the Central Wards had an average death-rate of 14.0, the middle ring of wards one of 10.8, and the outer ring of wards one of 8.7 per 1,000 living in these areas. The position of the wards and their death-rates can be seen on the diagram on the next page, the central wards being distinguished by a thick black line and the middle ring by a broken black line.



The average death-rate in each group in each of the last 5 years is given below:—

			Central Wards.	Middle Ring.	Outer Ring.
1924	...	...	14.5	11.2	9.8
1925	...	...	14.5	11.6	9.3
1926	...	...	14.1	10.9	9.2
1927	...	...	14.3	11.1	9.7
1928	...	...	14.0	10.8	8.7

## MORTALITY AT DIFFERENT AGE PERIODS.

The mortality at different age periods during 1928 was as follows:—

					Approximate Population.	Deaths.	Approximate Death-rate per 1,000	Per centage of Total Deaths.
Under 1 year	...	...	...	...	16,400	1,117	68.1	10.5
1 and under 2	...	...	...	...	15,900	238	15.0	2.2
2     "     3	...	...	...	...	16,300	85	5.2	0.8
3     "     4	...	...	...	...	16,000	60	3.7	0.6
4     "     5	...	...	...	...	16,300	47	2.9	0.4
5     "    10	...	...	...	...	78,500	180	2.3	1.7
10    "    15	...	...	...	...	87,500	104	1.2	1.0
15    "    20	...	...	...	...	90,000	207	2.3	1.9
20    "    25	...	...	...	...	86,000	266	3.1	2.5
25    "    35	...	...	...	...	151,500	498	3.3	4.7
35    "    45	...	...	...	...	136,000	775	5.7	7.3
45    "    55	...	...	...	...	117,600	1,353	11.5	12.7
55    "    65	...	...	...	...	85,000	1,700	20.0	15.9
65    "    75	...	...	...	...	44,000	2,103	47.8	19.7
75 and upwards	...	...	...	...	19,500	1,934	99.2	18.1

The table indicates the very low death-rates during childhood, adolescence, and earlier adult life, and the much heavier mortality in infancy and after the age of 45. About one quarter of the total number of deaths occur between the ages of 25 and 55, that is at the time when a person's powers should be at their best and when as a rule his responsibilities are at their highest.

The next table shows the main causes of mortality among adults of various ages up to 65 years.

## DEATHS FROM CERTAIN CAUSES AT AGE PERIODS.

Deaths from	20-24	25-34	35-44	45-54	55-64
Influenza ... ..	3	10	21	21	25
Pulmonary Tuberculosis ... ..	94	176	192	182	85
Cancer ... ..	4	26	94	240	399
Diseases of Nervous System ... ..	11	26	44	111	173
Diseases of Heart and Circulation ... ..	19	44	94	238	470
Respiratory Diseases ... ..	29	49	122	186	206
Diseases of Digestive System ... ..	16	32	38	88	85
Urinary System ... ..	7	17	39	77	86
Puerperal Diseases ... ..	5	26	31	3	—
Violence ... ..	39	39	41	94	55

It will be noted that the table continues to show that:

(1) Pulmonary tuberculosis is decidedly the greatest cause of death between 20 and 45 years of age. There were 462 deaths from this cause and at this age period last year.

(2) At ages over 45 heart disease is markedly the chief cause.

(3) Cancer also plays a large part in the mortality from 45 to 65 years.

(4) Respiratory diseases generally, and diseases of the nervous system, become of increasing importance with advancing age.

The principal causes of death at all ages during 1928 were as follows :—

#### PRINCIPAL CAUSES OF DEATH, 1928.

	Number of deaths. in 1928.	Proportion per 1,000 deaths from all causes.	Average No. of deaths 1918-27
Measles ... ..	41	4	(122)
Whooping Cough ... ..	163	15	(162)
Diphtheria ... ..	70	7	(121)
Influenza ... ..	130	12	(590)
Tuberculosis (all forms) ... ..	965	91	(1084)
<i>Tuberculosis of respiratory system</i> ... ..	840	79	(931)
<i>Other forms of Tuberculosis</i> ... ..	125	12	(153)
Cancer—Malignant Disease ... ..	1321	124	(1101)
Diseases of nervous system and sense organs	920	86	(960)
Total diseases of heart and circulation ... ..	2353	220	(1757)
<i>Diseases of Heart</i> ... ..	1732	162	(1359)
<i>Other diseases of circulatory system</i> ...	621	58	(398)
Total diseases of respiratory system ... ..	1525	143	(2064)
<i>Bronchitis</i> ... ..	512	48	(953)
<i>Pneumonia—all forms</i> ... ..	893	84	(983)
<i>Other diseases of respiratory system</i> ...	120	11	(128)
Total diseases of digestive system ... ..	659	62	(705)
<i>Diarrhœa and enteritis</i> ... ..	205	19	(293)
<i>Other diseases of digestive system</i> ... ..	454	43	(412)
Non-venereal diseases of genito-urinary system	467	44	(350)
Premature birth and diseases of early infancy	560	52	(704)
Old age ... ..	260	24	(499)
Violence (all forms) ... ..	543	51	(401)
Other causes ... ..	690	65	(651)
Total Deaths	10667	1000	(11271)

From the above figures it will be seen that the principal killing diseases were :—

Tuberculosis, 965 deaths (see page 65).

Cancer, 1,321 deaths (see below).

Heart Disease, etc., 2,353 deaths (see page 16).

Respiratory Diseases, 1525 deaths (see page 18).

#### INFANT MORTALITY.

(See page 91).

#### CANCER.

There were 1,321 deaths from cancer in Birmingham in 1928, as compared with 1,313 in 1927 and 1,205 in 1926.

The recorded death-rate from cancer has been as follows :—

#### DEATH-RATE PER 1,000 FROM CANCER.

	Birmingham.	England and Wales.
1901-1905 ... ..	.74	.87
1906-1910 ... ..	.84	.94
1911-1915 ... ..	.94	1.06
1916-1920 ... ..	1.03	1.18
1921-1925 ... ..	1.21	1.27

1919	...	...	...	1.01	1.18
1920	...	...	...	1.12	1.17
1921	...	...	...	1.12	1.21
1922	...	...	...	1.18	1.23
1923	...	...	...	1.17	1.27
1924	...	...	...	1.30	1.30
1925	...	...	...	1.27	1.34
1926	...	...	...	1.26	1.36
1927	...	...	...	1.36	1.38
1928	...	...	...	1.35	—

The mortality from cancer was distributed over various age periods as shown below :—

#### CANCER MORTALITY AT VARIOUS AGES.

				Deaths, 1928.	Death-rate per 1,000.
Under 25 years	...	...	...	20	.05
25—34 years	...	...	...	26	.17
35—44 years	...	...	...	94	.69
45—54 years	...	...	...	240	2.04
55—64 years	...	...	...	399	4.70
65—74 years	...	...	...	368	8.36
75 years and over	...	...	...	174	8.92

The distribution of the deaths over the various wards of the City was as follows :—

#### CANCER DEATH-RATES IN WARDS.

		Ward.			Death-rate 1928.	
Central Wards	...	St. Paul's	...	...	1.15	Average 1.41
		St. Mary's	...	...	1.60	
		Duddeston and Nechells	...	...	0.87	
		St. Bartholomew's	...	...	1.39	
		St. Martin and Deritend	...	...	1.72	
		Market Hall	...	...	1.61	
		Ladywood	...	...	1.50	
Middle Ring	...	Lozells	...	...	1.60	Average 1.45
		Aston	...	...	1.54	
		Washwood Heath	...	...	1.28	
		Saltley	...	...	0.98	
		Small Heath	...	...	1.26	
		Sparkbrook	...	...	1.91	
		Balsall Heath	...	...	1.85	
		Edgbaston	...	...	1.35	
		Rotton Park	...	...	1.56	
Outer Ring	...	All Saints	...	...	1.22	Average 1.20
		Soho	...	...	1.52	
		Sandwell	...	...	1.57	
		Handsworth	...	...	1.42	
		Perry Barr	...	...	0.40	
		Erdington North	...	...	0.92	
		Erdington South	...	...	1.08	
		Yardley	...	...	1.00	
		Acocks Green	...	...	1.03	
		Sparkhill	...	...	1.03	
		Moseley and Kings Heath	...	...	1.07	
		Selly Oak	...	...	1.12	
		Kings Norton	...	...	1.73	
		Northfield	...	...	1.06	
		Harborne	...	...	1.80	

The mortality rate from cancer continues to be fairly equally distributed over the City.

The large table on page 17 shows approximately the primary site at which cancer started in the cases which proved fatal in 1928.

It will be noted these are as follows:—

1. Lips, tongue, palate or jaw ...	...	...	...	...	84
2. Pharynx, œsophagus, stomach, liver	...	...	...	...	366
3. Peritoneum, intestine, rectum	...	...	...	...	303
					<hr/> 753
4. Female organs of reproduction	...	...	...	...	142
5. Breast ...	...	...	...	...	150
					<hr/> 292
6. Skin ...	...	...	...	...	12
7. Other organs ...	...	...	...	...	264
					<hr/> 1321
					<hr/>

In more than half the fatal cases of cancer the primary site was in the alimentary tract.

#### DISEASES OF THE HEART AND BLOOD VESSELS.

There were 2,353 deaths last year from diseases of the heart and blood vessels.

The death-rates during the past 10 years have been as follows:—

	Birmingham.	England and Wales.
1919 ...	1.73	1.88
1920 ...	1.72	1.75
1921 ...	1.64	1.80
1922 ...	1.85	2.00
1923 ...	1.71	1.93
1924 ...	1.91	2.04
1925 ...	2.11	2.16
1926 ...	2.12	2.18
1927 ...	2.28	2.49
1928 ...	2.41	—

The ages at death and death-rate per thousand were as follows:—

	Deaths.	Death-rate per 1,000.
Under 25 years ...	62	.15
25—34 years ...	44	.29
35—44 years ...	94	.69
45—54 years ...	258	2.02
55—64 years ...	470	5.53
65—74 years ...	720	16.36
75 years and over ...	725	37.18
	<hr/>	<hr/>
All ages	2,353	2.41
	<hr/>	<hr/>

It will be noted that 908 of these deaths occurred in persons under 65 years of age, and that 376 were in persons between 25 and 55 years old. This is a very heavy toll taken of people in the prime of life.

DEATHS FROM CANCER IN 1928.

Ages.	Lip, Tongue, Palate, Jaw.			Pharynx, Esophagus, Stomach, Liver.			Peritoneum, Intestine, Rectum.			Female Organs of Reproduction.			Breast.			Skin.			Other Organs.			Total.		
	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.
Under 1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	1	—	1
1—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4	—	4	4	—	4
5—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3	—	3	3	—	3
10—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
15—	—	—	—	1	—	1	1	—	1	—	—	—	—	—	—	—	—	—	5	1	6	7	1	8
20—	—	—	—	—	—	2	2	—	—	—	—	—	—	—	—	—	—	—	1	1	2	3	1	4
25—	—	—	—	1	5	6	1	2	3	—	3	3	2	—	2	—	—	—	6	6	12	8	18	26
35—	—	—	—	9	8	17	8	7	15	—	25	25	16	—	16	1	1	2	11	8	19	29	65	94
45—	12	3	15	34	22	56	25	15	40	—	36	36	45	—	45	1	1	2	29	17	46	101	139	240
55—	27	7	34	83	52	135	46	42	88	—	33	33	41	—	41	2	1	3	53	12	65	211	188	399
65—	25	3	28	64	42	106	51	51	102	—	27	27	27	1	27	2	1	3	49	25	74	192	176	368
75—	6	—	6	19	22	41	14	30	44	—	16	16	16	—	16	1	—	1	18	9	27	58	93	151
85—	1	—	1	—	4	4	—	8	8	—	2	2	2	—	2	—	1	1	2	3	5	3	20	23
All Ages	71	13	84	211	155	366	148	155	303	—	142	142	1	149	150	7	5	12	181	83	264	619	702	1321

## DEATH-RATES FROM HEART DISEASE AND ARTERIO SCLEROSIS IN WARDS.

	Ward.	Death-rate 1928.	
Central Wards	St. Paul's ... ..	3.08	Average 2.66
	St. Mary's ... ..	3.33	
	Duddeston and Nechells ... ..	2.87	
	St. Bartholomew's ... ..	2.32	
	St. Martin's and Deritend ... ..	2.45	
	Market Hall ... ..	2.32	
	Ladywood ... ..	2.24	
Middle Ring	Lozells ... ..	3.02	Average 2.28
	Aston ... ..	2.42	
	Washwood Heath ... ..	1.90	
	Saltley ... ..	1.72	
	Small Heath ... ..	1.98	
	Sparkbrook ... ..	2.43	
	Balsall Heath ... ..	2.66	
	Edgbaston ... ..	1.95	
	Rotton Park ... ..	2.23	
Outer Ring	All Saints ... ..	2.49	Average 1.98
	Soho ... ..	2.53	
	Sandwell ... ..	2.35	
	Handsworth ... ..	2.04	
	Perry Barr ... ..	0.40	
	Erdington North ... ..	1.76	
	Erdington South ... ..	2.25	
	Yardley ... ..	1.64	
	Acocks Green ... ..	1.47	
	Sparkhill ... ..	1.96	
	Moseley and Kings Heath ... ..	2.77	
	Selly Oak ... ..	2.01	
	Kings Norton ... ..	1.77	
	Northfield ... ..	2.48	
	Harborne ... ..	2.27	

## BRONCHITIS, PNEUMONIA AND OTHER RESPIRATORY DISEASES.

The mortality from these diseases in Birmingham, and England and Wales is shown in the next table.

	Birmingham.	England & Wales.
1901-1905 ... ..	3.19	2.77
1906-1910 ... ..	2.82	2.54
1911-1915 ... ..	2.64	2.44
1916-1920 ... ..	2.54	2.55
1921-1925 ... ..	2.10	2.05
1919 ... ..	2.67	2.53
1920 ... ..	2.46	2.17
1921 ... ..	2.02	1.96
1922 ... ..	2.38	2.31
1923 ... ..	1.98	1.87
1924 ... ..	2.15	2.13
1925 ... ..	1.97	2.00
1926 ... ..	1.88	1.74
1927 ... ..	1.89	1.93
1928 ... ..	1.56	—

The rate for Birmingham is approximately level with that for England and Wales as a whole, and in both there appears a tendency to dwindle in equal degree,

The distribution of the deaths from Respiratory Diseases over the wards of the City was as follows :—

DEATH-RATE PER 1,000 FROM RESPIRATORY DISEASES.

Ward.					Death-rate 1928.		
Central Wards	...	St. Paul's	...	...	2.85	}	Average 2.43
		St. Mary's	...	...	3.30		
		Duddleston and Nechells	...	...	2.02		
		St. Bartholomew's	...	...	2.01		
		St. Martin's and Deritend	...	...	2.42		
		Market Hall	...	...	2.26		
Middle Ring	...	Ladywood	...	...	2.17	}	Average 1.55
		Lozells	...	...	1.76		
		Aston	...	...	1.94		
		Washwood Heath	...	...	1.26		
		Saltley	...	...	1.40		
		Small Heath	...	...	1.15		
		Sparkbrook	...	...	1.69		
		Balsall Heath	...	...	1.67		
		Edgbaston	...	...	1.55		
Outer Ring	...	Rotton Park	...	...	1.54	}	Average 0.99
		All Saints'	...	...	1.51		
		Soho	...	...	1.19		
		Sandwell	...	...	1.23		
		Handsworth	...	...	1.11		
		Perry Barr	...	...	0.40		
		Erdington North	...	...	1.12		
		Erdington South	...	...	1.13		
		Yardley	...	...	0.57		
		Acocks Green	...	...	0.81		
		Sparkhill	...	...	0.85		
		Moseley and King's Heath	...	...	1.10		
		Selly Oak	...	...	0.99		
		King's Norton	...	...	1.08		
		Northfield	...	...	1.68		
		Harborne	...	...	0.58		

In the case of respiratory diseases there is a very marked difference in mortality in different parts of the City, the average death-rate in the central wards being last year two and a half times as high as that in the outer ring. Evidently the conditions of dust, of dirt, of aggregation, together with those connected with industrialism in its intenser forms, have a close relation to a high mortality from respiratory diseases.

The mortality from respiratory diseases at ages is shown below.

					Deaths.	Death-Rate per 1,000.
Under 1 year	...	...	...	...	180	10.98
1 year	...	...	...	...	74	4.65
2 years	...	...	...	...	20	1.23
3 years	...	...	...	...	17	1.06
4 years	...	...	...	...	1	0.06
5—24 years	...	...	...	...	76	0.22
25—34 years	...	...	...	...	49	0.32
35—44 years	...	...	...	...	122	0.90
45—54 years	...	...	...	...	186	1.58
55—64 years	...	...	...	...	206	2.42
65—74 years	...	...	...	...	269	6.11
75 and over	...	...	...	...	325	16.67

Cases of acute Primary and acute Influenzal Pneumonia have to be reported to the Public Health Department and a visit is paid to the home by a Health Visitor in all suitable cases. Last year 2,275 cases were notified, and 7,245 visits and re-visits were paid to them,

## DEATHS IN INSTITUTIONS.

Of the 10,667 deaths in 1928, 4,768 occurred in institutions, viz. :—

## POOR LAW :—

Dudley Road Hospital	...	...	...	...	...	1,113	
Western Road House	...	...	...	...	...	322	
Selly Oak Hospital	...	...	...	...	...	727	
Selly Oak House	...	...	...	...	...	137	
Erdington House	...	...	...	...	...	570	
Poor Law Institutions, outside City	...	...	...	...	...	180	
						—	3,049

## CITY HOSPITALS :—

Infectious Diseases, Babies, etc.	...	...	...	...	...	107	
Mental Hospitals	...	...	...	...	...	153	
Mental Hospitals outside City	...	...	...	...	...	24	
						—	284

City Sanatoria (Tuberculosis)	...	...	...	...	...		293
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## HOSPITALS :—

General	...	...	...	...	...	...	410	
Queen's	...	...	...	...	...	...	209	
Children's	...	...	...	...	...	...	149	
Women's (and Taylor Home)	...	...	...	...	...	...	63	
Homœopathic	...	...	...	...	...	...	11	
Maternity	...	...	...	...	...	...	40	
Other Hospitals in City	...	...	...	...	...	...	168	
Hospitals outside City	...	...	...	...	...	...	58	
							—	1,108

St. Joseph's Home, St. Paul's Convent, Nazareth House, H.M. Prison								34
--	--	--	--	--	--	--	--	----

4,768

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## II. GENERAL HEALTH SERVICES.

### HOSPITAL PROVISION.

The following is a list of Birmingham Hospitals (other than private hospitals) and the accommodation provided by them. Those marked (c) are supported wholly by the City Council, those marked (p) partly so.

								No. of beds.
A.1.—FEVER.								
City Hospital, Little Bromwich (c)	...	...	...	...	...	...	...	466
City Hospital, Lodge Road (c)	...	...	...	...	...	...	...	254
2.—SMALLPOX.								
Witton Smallpox Hospital (c)	...	...	...	...	...	...	...	24
B.1.—TUBERCULOSIS.								
Yardley Road Sanatorium (c)	...	...	...	...	...	...	...	325
West Heath Sanatorium (c)	...	...	...	...	...	...	...	116
Salterley Grange Sanatorium, Cheltenham (c)	...	...	...	...	...	...	...	68
Romsley Hill Sanatorium, Halesowen (c)	...	...	...	...	...	...	...	120
(Also about 100 beds in the Royal Cripples' Hospital and a few beds in the general hospitals towards the maintenance of which the City Council makes a grant).								
2.—MATERNITY.								
Maternity Hospital (p)	...	...	...	...	...	...	...	65
Heathfield Road Maternity Home (c)	...	...	...	...	...	...	...	18
(Also a number of beds (about 75) in the Poor Law Hospitals. The City Council makes a grant for certain of these).								
3.—CHILDREN.								
The Children's Hospital (p)	...	...	...	...	...	...	...	167
Witton Babies' Hospital (c)	...	...	...	...	...	...	...	50
Carnegie Institute (c)	...	...	...	...	...	...	...	9
(Also certain beds (about 250) in the Poor-Law Hospitals).								
4.—ORTHOPÆDIC.								
Royal Cripples Hospital (p)	...	...	...	...	...	...	...	268
5.—OTHER.								
(a) <i>General Hospitals</i> —								
The General Hospital	...	...	...	...	...	...	...	399
Jaffray Hospital	...	...	...	...	...	...	...	61
Homœopathic Hospital	...	...	...	...	...	...	...	97
Queen's Hospital	...	...	...	...	...	...	...	224
Dudley Road (Poor Law)	...	...	...	...	...	...	...	926
Selly Oak (Poor Law)	...	...	...	...	...	...	...	450
(b) <i>Special Hospitals</i> (exclusive of mental hospitals).								
Women's Hospital (p) and Taylor Memorial Home	...	...	...	...	...	...	...	135
Eye Hospital (p)	...	...	...	...	...	...	...	115
Ear and Throat Hospital	...	...	...	...	...	...	...	51
Skin and Urinary Hospital	...	...	...	...	...	...	...	22
Nerve Hospital	...	...	...	...	...	...	...	37

### INSTITUTIONS FOR UNMARRIED MOTHERS AND THEIR BABIES.

Provision is made for these, at Hope Lodge, Clarendon Road, and at the Day Servants Hostel in Monument Road by the Association for the Training and Care of unmarried Mothers and their Babies; also at The Hawthorns, Ladywood Road, by the Salvation Army, and at Woodville, Selly Oak by the Roman Catholic Church. The Public Health Committee make grants towards the cost of maintenance in the two former institutions.

## AMBULANCE FACILITIES.

There is a good and efficient motor ambulance service for all purposes in the City.

- |    |  |     |     |     |               |
|----|--|-----|-----|-----|---------------|
| A. | For acute infectious diseases the Public Health Department have  | ... | ... | ... | 4 ambulances. |
|    | For Tuberculosis the Public Health Department have   | ... | ... | ... | 2 ambulances. |
| B. | For accidents the City Police have   | ... | ... | ... | 8 ambulances. |
|    | For cases of illness requiring removal to or from hospital or otherwise, the Birmingham County Joint Committee (Order of St. John and British Red Cross Society) at the cost of the patient, or of the Corporation, have | ... | ... | ... | 5 ambulances. |

In addition there are several ambulances attached to hospitals or factories.

## CLINICS AND TREATMENT CENTRES.

Maternity and Child Welfare Centres (see page 102)	...	...	...	25
Day nurseries	...	...	...	0
School Clinics (see Report of School Medical Officer)	...	...	...	8
Tuberculosis dispensaries (see page 70)	...	...	...	1
Venereal Diseases, Treatment Centres (see page 84)	...	...	...	3

## PUBLIC HEALTH OFFICERS OF THE CITY COUNCIL.

The Staff of the Public Health Department is set out below:—

Medical Officer of Health	...	...	...	...	1
Assistant Medical Officers of Health (general)	...	...	...	...	2

## General Clerical Staff—

Chief Clerk and Statistician	...	...	...	...	1
Clerical Staff	...	...	...	...	12

## Accountants Office—

Accountant	...	...	...	...	1
Clerical Staff	...	...	...	...	12

## Sanitary Department—

Chief and Deputy Chief Sanitary Inspector	...	...	...	...	2
District Sanitary Inspectors	...	...	...	...	10
Assistant and Pupil Sanitary Inspectors	...	...	...	...	30
Smoke Inspectors	...	...	...	...	2
Canal Boats and Common Lodging House Inspector	...	...	...	...	1
Shops Inspectors	...	...	...	...	2
Disinfectors	...	...	...	...	11
Court Cleansers	...	...	...	...	11
Driver	...	...	...	...	1
Clerical Staff	...	...	...	...	7
Food and Drugs Inspectors: Chief Inspector	...	...	...	...	1
Assistant Inspectors	...	...	...	...	2

## Child Welfare Department—

Assistant Medical Officer of Health (Child Welfare)	...	...	...	...	1
Medical Officers (whole time)	...	...	...	...	7
Medical Officers (part time)	...	...	...	...	19
Superintendent and Assistant Superintendents of Health Visitors	...	...	...	...	3
Midwives Inspectors	...	...	...	...	2
Health Visitors	...	...	...	...	85
Pupil Visitors	...	...	...	...	6
Dentist (part time)	...	...	...	...	1
Masseuse, and Dental Nurse	...	...	...	...	2
V.D. Nurses (one whole time, one part time)	...	...	...	...	2
Sewing and Cookery Mistresses	...	...	...	...	9
Caretakers, Cleaners, etc.	...	...	...	...	39
Porters, Gardeners, etc.	...	...	...	...	12
Nursing Staff (Hospitals and Homes)	...	...	...	...	46
Domestic Staff (Hospital and Homes)	...	...	...	...	27
Laundry Staff (General)	...	...	...	...	10
Clerical Staff (whole time and part time)	...	...	...	...	9

**Tuberculosis Department—**

Chief Tuberculosis Officer	...	...	...	...	...	...	...	...	1
Medical Officers	...	...	...	...	...	...	...	...	8
X-Ray Operator	...	...	...	...	...	...	...	...	1
Dentist (part time)	...	...	...	...	...	...	...	...	1
Nursing Staff (Sanatoria)	...	...	...	...	...	...	...	...	113
Domestic Staff (Sanatoria)	...	...	...	...	...	...	...	...	89
Dispensers	...	...	...	...	...	...	...	...	5
Teachers	...	...	...	...	...	...	...	...	3
Masseuse	...	...	...	...	...	...	...	...	1
Porters, Gardeners, Stokers, Drivers, etc.	...	...	...	...	...	...	...	...	52
Tuberculosis Visitors	...	...	...	...	...	...	...	...	11
Tuberculosis Nurses	...	...	...	...	...	...	...	...	5
Clerical Staff	...	...	...	...	...	...	...	...	14

**City Hospitals—**

Medical Superintendent	...	...	...	...	...	...	...	...	1
Medical Officers (4 whole and 1 part time)	...	...	...	...	...	...	...	...	5
Nursing Staff	...	...	...	...	...	...	...	...	118
Domestic Staff	...	...	...	...	...	...	...	...	72
Porters, Gardeners, Stokers, Drivers, etc.	...	...	...	...	...	...	...	...	45
Dispenser	...	...	...	...	...	...	...	...	1
Clerical Staff	...	...	...	...	...	...	...	...	1

**Steward's Office—**

Steward	...	...	...	...	...	...	...	...	1
Clerical Staff	...	...	...	...	...	...	...	...	4

**Works Department—**

Manager and Assistant Manager of Works	...	...	...	...	...	...	...	...	2
Clerical Staff	...	...	...	...	...	...	...	...	2
Carpenters, Painters, Bricklayers, Plumbers, etc.	...	...	...	...	...	...	...	...	32

**Bacteriological Department—**

Bacteriologist and Assistant Bacteriologist	...	...	...	...	...	...	...	...	2
Others	...	...	...	...	...	...	...	...	11

**City Analyst's Department—**

City Analyst	...	...	...	...	...	...	...	...	1
Analyst's Assistants	...	...	...	...	...	...	...	...	3
Others	...	...	...	...	...	...	...	...	3

**Nurses Rest Home—**

Matron	...	...	...	...	...	...	...	...	1
Staff (whole and part time)	...	...	...	...	...	...	...	...	3

**PROFESSIONAL NURSING IN THE HOME.**

The supply of nurses for general purposes is provided by nine district nursing associations, a number of the district nursing associations having combined under the general title of the City of Birmingham District Nursing Association since the issue of the last report. These cover the whole area of Birmingham. These associations provide district nurses and also undertake to nurse any cases of measles, whooping cough or pneumonia which are referred to them by the Public Health Department, at a uniform charge of 10/- per case. In any cases of the above diseases coming in the first place to the knowledge of the District Nursing Association a similar fee is paid provided the name and address of the patient are sent to the Public Health Department forthwith.

The Little Sisters of the Assumption, Edgbaston, attend cases of non-infectious disease in poor homes, and look after the house and children. No fee is charged.

For better class cases, nurses may be obtained from one of the many nursing organisations in the City.

## List of District Nursing Societies :—

Society.	Secretary.	Nurses' Home (if any)	Nurse.
City of Birmingham District Nursing Association	Mr. S. L. Gillman, 48, Summer Hill Road.		
Central and Winson Green Area		48, Summer Hill Road.	Matron : Miss E. M. Morris.
Bordesley, Balsall Heath and Moseley Area		94, Moseley Road.	Matron : Miss F. M. Holt.
Saltley and Washwood Heath Area		306, Washwood Heath Rd.	Nurse in charge : Miss L. M. Peck.
Acock's Green Area			Nurse Bishop, 114, Oxford Road, Acocks Green. Nurse Wigley, 475, Fox Hollies Road.
Handsworth and Perry Barr Area			Nurse White, 14, Sycamore Road. Nurse Smith, 20, Hamstead Road. Nurse Davis, 28, Douglas Road.
Hay Mills, Yardley and Small Heath			Nurse Dicks, 53, Flora Rd. Nurse Johnson, 425, Hob- moor Road. Nurse Wagstaff, 114, Aubrey Road.
Selly Oak, King's Norton and Northfield Area (Selly Oak).			Nurse Ellis, 1022, Pershore Road, Selly Park. Nurse Tracey, 15, Willow Road, Bournville.
(King's Norton).			Nurse Huband, 25, Watford Road.
(Northfield).			Nurse Jones, 689, Bristol Road, Northfield.
Aston Manor ... ..	Mr. R. Everitt, 127, Albert Road, Aston.	127, Albert Road, Aston.	Matron : Miss A. Price.
Erdington ... ..	Mr. G. E. Hawthorne, 415, Kingsbury Road, Erdington.		Nurse Harris, 1, Edwards Road, Erdington.  Nurse Ayton and Nurse Luxton, 25, Stockland Road, Erdington.
Harborne ... ..	Miss A. B. Appleton, Home Farm, Harborne.		
Sparkhill and Greet ... ..	Mrs. G. A. C. Pettitt, 116, Oxford Rd., Moseley.		Nurse Cranmer and Nurse Herbert, 6, Durham Rd., Sparkhill.
King's Heath ... ..	Mrs. Gretton Watson, 1, Vicarage Road.		Nurse, 154, Taylor Road, King's Heath.
Selly Hill and Dads Lane Estate ... ..	Mrs. J. L. Brown, The Limes, Selly Park.		Nurses, 100, Oak Tree Lane, Selly Oak. 48, Dads Lane, King's Heath.
Stechford ... ..	Mr. Walter Henman, 113, Lyttelton Road, Stechford.		
Billesley and Yardley Wood	Mr. J. Ingram, 95, Colemeadow Road, Billesley.		Nurse Lewis, 95, Colemeadow Road, Billesley.

## GENERAL HEALTH VISITING.

The accompanying table indicates the class and variety of cases investigated by the general Health Visitors, and gives the numbers visited by them during 1928 and the two preceding years :

PRIMARY VISITS :—					1926.	1927.	1928.
House Inspection	...	...	...	...	2,130	3,926	4,195
Infant Visits (including Stillbirths)	...	...	...	...	1,697	485	414
Measles	...	...	...	...	6,222	7,634	4,624
German Measles	...	...	...	...	1,470	153	296
Chicken Pox	...	...	...	...	5,965	4,487	4,925
Whooping Cough	...	...	...	...	3,677	1,962	4,997
Mumps	...	...	...	...	5,569	4,340	4,733
Influenza	...	...	...	...	292	442	294
Pneumonia	...	...	...	...	2,683	2,865	2,470
Scabies	...	...	...	...	87	75	102
Impetigo	...	...	...	...	638	822	827
Enlarged Glands	...	...	...	...	1,092	1,303	1,254
Bronchitis, Colds, etc.	...	...	...	...	2,996	2,552	3,086
Neglect, Insufficient Clothing, etc.	...	...	...	...	77	75	159
Verminous Cases	...	...	...	...	64	100	109
Visits to Schools	...	...	...	...	227	347	602
Visits to obtain addresses	...	...	...	...	807	716	707
Visits to Officials, Doctors, etc.	...	...	...	...	254	454	473
Visits to aged persons or on their behalf	...	...	...	...	201	250	335
Country Holiday Inspections	...	...	...	...	4	26	215
Other Visits	...	...	...	...	1,420	7,200	976
Total Primary Visits	...	...	...	...	37,572	40,214	35,793
RE-VISITS	...	...	...	...	20,359	20,270	22,589
TOTAL EFFECTIVE VISITS	...	...	...	...	57,931	60,484	58,382

As will be seen from the above tabulation of visits paid by the 19 General Health Visitors in 1928, their work has been similar to that done in former years. The non-notifiable infectious diseases, measles, German measles, whooping cough, chicken-pox and mumps were reported chiefly by the school authorities, but in some cases, were notified by the parents. The Health Visitors give advice as to the need for obtaining medical help, or for the services of a district nurse where necessary, particularly in cases of measles and whooping cough. They also give instructions as to the length of time the patient and contacts, if school children, should be excluded from school. A copy of these instructions is subsequently sent to the head teachers of the schools affected. Library books, if suspected of being used by the patient, are sent to the Health Department for disinfection.

A number of cases of scabies were reported by the school medical department. The homes were visited and instructions given on the cleansing of bedding and personal clothing. Tickets for special baths at the Skin Hospital were given to non-panel patients when considered desirable, and also in the case of children under school age.

Occasionally, children reported as suffering from chicken-pox were found to have impetigo, and these were referred to the School Clinic or to the private doctor.

Children notified as verminous and flea-bitten, were visited and inspected in their homes, and their parents advised. Subsequent visits were paid in each case, to ascertain whether the instructions had been carried out.

Old and infirm people have been visited on receiving complaints about their inability to keep themselves and their homes in a cleanly condition. When necessary and possible they have been removed to an institution.

It will be noticed that the number of visits paid has remained practically the same, except in the case of Country Holiday Inspections, where there was a material increase in the number of visits. The Health Visitors had the opportunity of obtaining a fortnight's holiday for delicate or poor children in their districts. Special visits were paid in order to ensure that such children were adequately clothed, and also that they were free from any infectious disease.

## MIDWIVES.

(See page 116).

## MATERNITY AND NURSING HOMES.

(See page 117).

## MATERNAL MORTALITY.

(See page 117).

## LEGISLATION IN FORCE.

The following is a list of special Acts and Bye-laws relating to the Public Health in force in Birmingham together with the respective dates at which the provisions became operative :—

## GENERAL ADOPTIVE ACTS.

	Dates at which provisions came into operation.
Public Health Amendment Act, 1890 (Part III. adopted) ... ..	9th March, 1891.
Public Health Acts Amendment Act, 1907. Sections 36, 44, 46, 51, 53, 55, 58, 62, 65 ... ..	1st June, 1916.
Section 64 ... ..	25th October, 1922.
Section 95 ... ..	24th February, 1925.
Infectious Disease Prevention Act, 1890 ... ..	9th March, 1891.
Public Health Act, 1925. Sections 13-15, 17-19, 21-28, 30, 31, 35, 37, 39, 41-51, 53-55 ... ..	15th March, 1926.

## LOCAL ACTS.

The Birmingham Corporation (Consolidation) Act, 1883 ... ..	1st January, 1884.
The Birmingham Corporation Act, 1903 ... ..	11th August, 1903.
The Birmingham Corporation Act, 1914 ... ..	31st July, 1914.
The Birmingham Corporation Act, 1919 ... ..	15th August, 1919.
The Birmingham Corporation Act, 1922 ... ..	4th August, 1922.

## BYE-LAWS.

Lime Kilns, 1864 ... ..	1st October, 1864.
Dairies, Cowsheds and Milkshops, 1901 ... ..	1st April, 1901.
Offensive Trades, 1905 ... ..	15th June, 1905.
Common Lodging Houses, 1909 ... ..	1st October, 1909.
Nuisances, 1909 ... ..	1st October, 1909.
Tents, Vans, etc. (used for human habitation), 1909 ... ..	1st October, 1909.
Public Slaughter Houses, 1909 ... ..	26th November, 1909.
Private Slaughter Houses, 1909 ... ..	26th November, 1909.
Knackers Yards, 1909 ... ..	26th November, 1909.
Private Slaughter Houses, 1910 (Sunday Slaughter) ... ..	15th July, 1910.
Rag, Bone and Skin Merchants, 1909 ... ..	1st October, 1909.
Good Rule and Government, 1914 (Offensive Offal through streets, Bye-law No. 8) ... ..	18th August, 1914.
Underground Rooms, 1915 ... ..	3rd June, 1915.
House Refuse (Collection), 1921 ... ..	29th June, 1921.
Houses let in Lodgings, 1922 ... ..	9th March, 1922.
Covering Meat in transit through Streets, 1923 ... ..	14th October, 1923.
Nursing Homes, 1928 ... ..	5th November, 1928.

### III. SANITARY CIRCUMSTANCES.

#### WATER SUPPLY.

Periodical examinations, both chemical and bacteriological, have been made of the Corporation Water Supply and these have shown that the quality of the water has been maintained at a uniformly satisfactory level.

No outstanding extension of the Corporation Supply was made during 1928, the operations of the Water Department being confined to meeting the demands occasioned by the building schemes carried out in different parts of the City.

There has been no difficulty as regards the quantity of water required, the demands of the public being readily met.

#### POLLUTION OF RIVERS AND STREAMS.

I am indebted to Mr. H. H. HUMPHRIES, the City Engineer and Surveyor, for the following statement :—

#### REPORT OF INSPECTOR TO THE TAME BASIN JOINT COMMITTEE.

The question of the prevention of pollution of streams has been very emphatically brought to the notice of the responsible authorities during the past year.

The Joint Advisory Committee on River Pollution which, it will be remembered, was appointed in November, 1927, by the Minister of Health and the Minister of Agriculture and Fisheries to consider and from time to time to report on the position with regard to the pollution of rivers and streams, issued their first Report last year, and the recommendations contained in that report have been further brought to the notice of all responsible authorities in circular No. 922 issued by the Minister of Health and dated the 21st September, 1928. The point is emphasized that the Minister of Health under the law as it stands at present (Section 14 of the Local Government Act, 1888) may, by Provisional Order, made on the application of any one of the County Councils or County Borough Councils through whose jurisdiction a river passes, set up a Rivers Board to control the whole length of a river, including its tributaries, so far as it is subject to the Rivers Pollution Prevention Acts.

Your officers have been informed that this Committee may be invited in the near future to participate in a discussion upon the question of the adoption of some further measures for preventing pollution in the watershed of the River Trent.

The Advisory Committee state they were happy to learn that where Rivers Pollution Prevention Authorities have been established, they have found it possible in the great majority of instances to effect improvements by advice and persuasion, and that the relations between these authorities and the manufacturers and local authorities are generally cordial, the knowledge and experience of the officials having been found helpful by the traders and the sanitary authorities.

Marked interest has also continued to be taken in the results of the efforts of the Tame Basin Joint Committee, and the paper submitted by your Inspector on the work of the Committee, at a meeting of the Managers of Sewage Disposal Works, aroused a very helpful discussion. Chiefly as a result of the assistance given by the Executive Committee, a committee modelled on similar lines to your own, and with the same object in view, has been established in the watershed of the River Stour.

The observations in connection with the Hydrographical Survey of the River Trent have been continued during the past Summer, and although the waters of the River Tame have been remarkably clear during the prolonged periods of fine weather, there has been no appreciable increase in the oxygen content of the water. Small fish have, however, been observed in the River on several occasions in the Witton area of the City of Birmingham, and it may be assumed therefore that the large amount of work undertaken by both local authorities and traders for remedying the seriously polluted condition of the River has restored the water to a quality capable of supporting fish life.

Dr. E. C. Jee, the Technical Advisor to the Standing Committee on River Pollution, has observed that there has been a big improvement in the condition of oxygenation of the Upper River Tame during 1926 and 1927, and that this improvement has doubtless for the most part been due to the cumulative efforts of the Tame Basin Joint Committee, which have already doubled the dissolved oxygen content of the water.

Following the report submitted to the Committee on the 20th March, 1924, upon the important question of pollution by storm water and sewage, the attention of the Committee has again been called to this question in a report presented on the 7th February last, when they were of the opinion that the time has arrived when concerted action of a national character has become necessary in order to remedy the gross pollution of the streams which occurs in the more thickly populated areas throughout the country by discharges of this character.

With reference to the pollution of the stream by the discharges of imperfectly treated sewage, owing to the total inadequacy of the sewage disposal works of the West Bromwich Corporation and the Oldbury Urban District Council, the proposed trunk valley sewer scheme for conveying the sewage from this area to the works of the Birmingham Tame and Rea District Drainage Board has been placed before the authorities concerned, and the proposals were informally discussed by the representatives of the interested authorities at conferences held on the 27th July, 1928, and the 17th January, 1929.

It has been pointed out that whatever scheme is ultimately adopted for the disposal of the sewage of West Bromwich and Oldbury several years must elapse before the completion of such a scheme, and consequently a serious effort should be made by these authorities to improve the efficiency of the existing works with the object of at any rate reducing the gross pollution of the stream. The West Bromwich Corporation has undertaken the work of washing the media in the secondary contact beds and has reserved an increased area of land for the irrigation of the sewage at their Friar Park Works. The suggestions made by this Committee for improving the efficiency of the Newton Road Outfall Works have also been adopted.

The Oldbury Urban District Council has also adopted the recommendation of the Committee and appointed a competent Manager at their sewage works, and the washing of the seriously silted media in the contact beds is being undertaken, preparatory to converting them into percolating filters.

Excellent work has also been undertaken by other local authorities for increasing the capacity of their sewage disposal works. The Short Heath Urban District Council has voluntarily undertaken the construction of an additional percolating filter at their Clarkes Lane Sewage Works, and upon the advice of the Committee, also included a valuable additional unit in the form of storm water settling tanks. The efficiency of the percolating filters at the Brownhills Sewage Works has been considerably increased by the replacement of the out-of-date fixed pipe distributors with the automatic travelling type. The Willenhall Urban District Council has erected a sludge pump of improved design at their sewage works, and with the more systematic removal of the sludge from the tanks, and stricter attention to other details of management, the standard of purification is improving. This authority has also commenced work upon the construction of a new main outfall sewer, in order to prevent the occasional irregular overflows of crude sewage to the stream which occur owing to the silting of the existing main sewer. Practically the whole of the work in connection with the comprehensive scheme of sewerage and sewage disposal for the Coseley Urban District has been completed. The southern portion of this district is sewered to outfall works situated at the Fox-yards, and although only a comparatively small volume of sewage is at present reaching the works, further contracts have recently been arranged to expedite the work of connecting the house drains with the new sewers. The sewers serving the northern portion of the district have been connected to those of the Bilston Urban District Council, and in order to accommodate the increased flow of sewage this authority has undertaken work for increasing the capacity of both the main outfall sewer and the sewage disposal works. During the progress of the work upon the former, the crude sewage was permitted to discharge to the stream for what was, in the opinion of the Committee, an unnecessarily long period.

A scheme is at present being investigated by the Borough Engineer of Walsall for conveying the drainage from portions of the County Borough, the Walsall Rural District and the Brownhills Urban District to one outfall site. The drainage from this area is at present disposed of at six separate sites and the development of a regional scheme of sewage disposal would be an immense improvement upon the existing conditions. Pending the completion of this investigation, the Rural District Council has commenced work for increasing the efficiency of their Goscote Sewage Works. The Wednesfield Urban District Council has instructed their Engineer to proceed with the preparation of a complete scheme for increasing the capacity of both the main outfall sewer and the sewage disposal works, and it is anticipated that work will be commenced upon the first section of the scheme in the near future.

The Committee has continued to emphasize to the local authorities that the successful operation of the sewage purification process depended almost wholly upon its efficient management, with the result that the sewage works of two authorities have recently been placed in charge of competent managers. A contrasting instance has been observed where a local authority has placed their new sewage disposal works, designed to deal with the drainage of a population of 15,000 persons, and including a sewage pumping station, in the charge of one person who has had no previous experience in the supervision of the process of sewage purification.

During the past year good progress has been made with the work of preventing the pollution of the streams by the discharge of liquid trade waste. This has been made possible chiefly owing to the sympathetic attitude adopted by the local authorities towards their traders on the important question of the admission of liquid trade refuse to the public sewers, and it is pleasing to observe that several authorities, who have in the past objected to the presence of trade waste in their sewers, have recently reversed this attitude.

The experience of the Committee has been that where the authorities have not favoured the principle of admitting liquid waste into the sewers, uncontrolled and intermittent discharges of waste to the sewers have occurred, usually at night time, when the flow of sewage is at the minimum, and when they are liable, owing to lack of dilution, to inflict serious injury upon the process of sewage purification. This Committee has continued to advise that provided the flow of these liquids to the sewer is properly controlled, and is not out of proportion to the flow of sewage, their presence is frequently a benefit to the process of sewage purification, and that consequently it is advisable for all the local authorities to carefully consider the adoption of a policy permitting the regular admission to the sewers of the liquid trade refuse produced in the local industries.

That the presence of liquid waste in the sewage is a benefit to the process of sewage purification has recently been strikingly illustrated at Bilston, where owing to sewer reconstruction work, only a purely domestic sewage has been reaching the disposal works. During this period the standard of purification of the sewage deteriorated, although the process was unaltered, but immediately the flow of sewage containing the liquid trade waste was restored to the works, the standard of purification improved, and after a few days the usual excellent standard of purification was again obtained.

That the adoption of a policy favourable to the reception of trade refuse into sewers prevents the pollution of the stream is illustrated in the Walsall County Borough. The Corporation has permitted the local traders to connect liquid waste with the sewers upon an undertaking being given that no material liable to cause an obstruction of the sewer shall be discharged thereto. The waste liquid admitted to the sewers has certainly made the sewage of the district of a very complex character, but the process of purification in operation at the sewage works has been so adapted to the conditions that a very high standard of purification of the concentrated sewage is maintained, and the stream after its passage through the industrial area of Walsall remains in normal times almost in a natural condition of purity.

Liquid refuse has been connected to the sewers from two trade premises and arrangements have been made for disposing of the waste in a similar manner from five further premises. The question was discussed with one of these firms during the erection of new premises, with the result that the firm has undertaken to arrange the process in which polluting liquid waste will be produced so that advantage may be taken of an available sewer for the disposal of the waste, and this work will be completed before the manufacturing processes are commenced.

Three firms have undertaken the construction of settling tanks to enable them to effectively purify liquid trade refuse before its discharge to a stream. It is interesting to note in one of these instances where the polluting matter was a heavy oil, that the value of this material recovered from the settling tanks during a few weeks, for re-use in the processes, exceeded the expenditure incurred by the firm in providing the treatment works.

At the conclusion of the seventh year of the existence of this Committee it is very satisfactory to be able to report continued progress in the work of improving the condition of the waters of the Upper River Tame. No more qualified testimony that this is being attained can be quoted than that of the Engineer to the Birmingham Tame and Rea District Drainage Board, who has reported to his authority upon the improvement in the condition of the River Tame, and upon the consequent necessity for raising the standard of purity of the effluent discharged to the River from the Board's works. As the result of this, the Board is proceeding to increase the capacity of the bio-aeration sewage purification installation from seven and a half million gallons to twenty million gallons.

### SEWERAGE WORKS.

(By MR. H. H. HUMPHRIES, M.Inst.C.E., City Engineer and Surveyor).

The following sewerage works were carried out during 1928:—

Reconstruction of the Cole Valley Sewer, from Speedwell Road to Warwick Road. Length,  $\frac{3}{4}$  mile.

Reconstruction of Rea Valley Sewer from Lifford Lane to Quarry Lane.  $2\frac{1}{4}$  miles.

Reconstruction of Hockley Main Sewer from Farm Street to Hockley Hill.  $\frac{3}{8}$  mile.

Reconstruction of the Acocks Green Western Outfall Sewer from Outfall Works to The Avenue.  $1\frac{1}{2}$  miles.

New valley sewer, Spring Lane and Moor End Lane, Erdington.  $1\frac{1}{4}$  miles.

Gospel Lane Sewer Extension to drain new housing estates.  $\frac{3}{8}$  mile.

Perry Common Outfall Sewer Extension and deepening of brooks.  $\frac{5}{8}$  mile.

Deepening and improvement of the Hockley Brook from Hockley Hill to Perrott Street.  $1\frac{1}{4}$  miles.

In addition, many smaller sewerage schemes have been undertaken for the purpose of drainage of new housing estates, and several old sewers in the City have been reconstructed.

### SCAVENGING AND REFUSE DISPOSAL.

(By MR. JAMES JACKSON, M.I.C.S., Superintendent of the Salvage Department).

#### PROPOSED NEW SALVAGE UTILISATION WORKS, ROTTON PARK STREET.

In pursuance of the City Council's policy of abolishing the tipping of crude house refuse, the Salvage Department have under consideration a scheme for completely modernising the existing Destructor at their Rotton Park Street Depot. The new works will deal with approximately 42,000 tons of refuse per annum, and it will be the largest plant of its kind in the City. The estimated cost of the new works is £125,000 and they will contain all the latest devices for scientifically and economically disposing of house refuse.

Since the adoption of the City Council's policy of abolishing the tipping of crude house refuse, the following large schemes have been completed; the erection of new works at Witton and Tyseley, and the extension of existing plants at Montague Street and Lifford Depots, the total capital expended on these schemes being £250,000.

The following table shews the diminution in the quantity of crude refuse deposited at tips during the six years ended.

Year ended, Mar. 31st.	Refuse treated at depots.	Refuse taken to tips.	Total refuse dealt with	Percentage tons of refuse tipped.
1924	167,032 tons	83,624 tons	250,656 tons	34%
1925	181,493 "	54,688 "	236,181 "	23%
1926	197,245 "	42,037 "	239,282 "	18%
1927	198,752 "	26,543 "	225,295 "	12%
1928	209,417 "	27,670 "	237,087 "	12%
1929	215,375 "	24,742 "	240,117 "	10%

### PROVISION OF STANDARD DUSTBINS FOR TEMPORARY STORAGE OF REFUSE.

Steady progress has been maintained with the installation of standard dustbins and 98.99 per cent. of the City is now provided with these receptacles.

The following table shews the progress of this work to date during the last five years.

Date	No. of Premises	No. of standard bins		No. of other bins	No. of tubs and other movable stan. bins.	No. of bin-sheds containing standard bins	No. of Dry Ashpits	No. of Pans	No. of Wet Pits	No. of Dumb wells.
		Good	Bad							
Mar. 1929	231,910	202,526	—	709	55	84,182	1,049	476*	239*	590*
" 1928	224,947	194,512	—	802	69	83,268	1,243	412	237	206
" 1927	218,421	177,540	473	990	738	79,298	4,555	420	255	215
" 1926	211,000	161,584	2,519	1,926	3,538	70,913	12,286	422	256	219
" 1925	204,509	142,910	4,211	2,591	5,669	61,822	20,213	429	347	196
" 1924	200,677	112,111	11,733	2,780	10,655	41,775	36,613	394	351	183
					March 1929.	March 1928.	March 1927.	March 1926.	March 1925.	March 1924.
					%	%	%	%	%	%
Good Standard Bins	...	...	...	...	98.99	98.80	96.19	88.73	81.23	64.35
Bad Standard Bins	...	...	...	...	—	—	.26	1.38	2.39	6.73
Other Bins	...	...	...	...	.35	.41	.54	1.06	1.47	1.59
Various kinds of portable receptacles (other than ashbins)	...	...	...	...	.03	.04	.40	1.94	3.22	6.12
Ashpits—Wet and Dry	...	...	...	...	.63	.75	2.61	6.89	11.69	21.21
					100.00	100.00	100.00	100.00	100.00	100.00

\*Increase due to Annexation of the District of Perry Barr.

### VOLUNTARY DUSTBIN HIRE SCHEME.

This scheme continues to receive the support of property owners throughout the City and the following table shews the progress of the scheme to date since its inception.

Year ended 31st March,	No. of Owners entering scheme.	No. of Bins supplied under scheme.
1924 ... ..	940	5,465
" " " " 1925 ... ..	931	6,889
" " " " 1926 ... ..	1,066	8,414
" " " " 1927 ... ..	967	6,911
" " " " 1928 ... ..	745	6,482
" " " " 1929 ... ..	732	5,821
Total to 31st March, 1929 ... ..	5,381	39,982

The annual rental varies from 1/11d. to 1/6d. per bin.

### SMALL STANDARD DUSTBINS.

A smaller size dustbin having a capacity of  $2\frac{1}{4}$  cubic feet, was sanctioned by the City Council upon the recommendation of the Salvage Committee, for use at properties approved by the Salvage Committee. These dustbins have now been in use for the past eighteen months and their inauguration has been fully justified.

### TREATMENT OF VEGETABLES.

During the year the Salvage Department have introduced a new scheme for converting vegetable refuse, especially that coming from the Markets into a fertiliser. The plant is proving an economic success, and the result will be a material improvement in the sanitary disposal of refuse.

It is generally recognised that it is impossible to burn vegetable material and to tip same is always liable to serious nuisance, unless extraordinary precautions are taken.

### SANITARY INSPECTION.

(Report by Mr. FRANK THOMPSON, Chief Sanitary Inspector).

*Staff.* Since 1913 Birmingham for Sanitary Administrative purposes has been divided into 8 districts, each district having 1 District Inspector and 3 Assistant Inspectors, the District Inspector allocating to each of his assistants day by day all nuisances, complaints, cases of infectious disease or other matters needing investigation.

In addition to these 32 Inspectors there were 14 Inspectors for special duties, viz.: Milk Shops (2), Workshops (3), Smoke (2), Shops Acts (2), Common Lodging Houses and Canal Boats (1), Houses let in Lodgings (1), and Food and Drugs (3).

At the time of preparation of this report certain of these duties, viz., those of the Inspectors of milkshops, workshops, common lodging houses and houses let in lodgings, had been or were being absorbed into the work of the general Inspectors, allowing of a closer degree of co-ordination in the work, as well as of other advantages. Reference will be made to this change in greater detail in the next report. It will suffice here to say that the adjustment of work has been met by increasing the number of Inspectors' districts from 8 to 10, the special Inspectors concerned having at the same time been brought into the general inspectorial staff.

The table below shows the number of visits paid by the general Sanitary Inspectors, and the number of defects found for which notices were served.

	Number of visits paid by inspectors.			Number of defects for which notices were served.
1922	...	...	134,516	86,938
1923	...	...	143,866	104,210
1924	...	...	148,199	123,573
1925	...	...	124,024	104,735
1926	...	...	124,265	108,601
1927	...	...	130,530	119,264
1928	...	...	126,694	118,844

The next table gives fuller details of the character of the work done.

No. of visits and revisits paid:—

General House Inspection	...	...	...	...	...	...	13,036
Infectious Diseases	...	...	...	...	...	...	8,970
Nuisances or Complaints	...	...	...	...	...	...	29,488
Work ordered	...	...	...	...	...	...	41,258
Work in progress	...	...	...	...	...	...	16,535
Inspection of Dirty Courts	...	...	...	...	...	...	1,951
Manure Receptacles	...	...	...	...	...	...	470
Smoke or Water Tests	...	...	...	...	...	...	762
Tents, Vans and Sheds	...	...	...	...	...	...	469
Offensive Trades	...	...	...	...	...	...	97
Ice Cream Vendors	...	...	...	...	...	...	2,253
Rats Order	...	...	...	...	...	...	2,272
Calls on Owners or Agents	...	...	...	...	...	...	4,059
Other Purposes	...	...	...	...	...	...	5,074
Total	...	...	...	...	...	...	126,694

Defects, etc., found.

	1928.
Houses to be disinfected	3,238
Repairs to Houses	81,067
Houses to be cleansed	5,961
Houses to be provided with better ventilation	174
Houses to be provided with separate water supply	1,655
Cases of overcrowding to be remedied	21
Houses to be provided with Damp Courses	265
Water to be removed from Cellars	382
Spouting to be repaired or disconnected	3,879
Rain Water Cisterns to be disconnected or abolished	109
Ashpit Privies to be converted to Water Closets	1
Pan Privies to be converted to Water Closets	77
Privies and Closets to be limewashed	999
Water Closets to be repaired or reconstructed	3,315
Additional Water Closets to be provided	152
Ashplaces to be repaired or limewashed	66
Soilpipes to be repaired or removed	96
Urinals to be put in order or closed	56
Drains to be relaid or repaired	1,402
Drains to be opened and cleansed	5,859
Gully Traps to be provided	699
Interception Traps to be provided on main drains	35
Premises to be supplied with additional drains	212
Drains in cellars to be disconnected or abolished	15

Sink Bend Pipes to be repaired or affixed	...	...	...	1,666
Sanitary Sinks to be provided	...	...	...	960
Yards to be paved	...	...	...	106
Yards to be repaired	...	...	...	1,259
Courts or Yards to be cleansed by Tenants	...	...	...	79
Houses to be cleansed by Tenants	...	...	...	471
Wash Houses to be repaired or limewashed	...	...	...	2,088
Keeping of fowls to be discontinued	...	...	...	29
Nuisances from swine and swine styes abated	...	...	...	35
Accumulations of rubbish, manure, etc., to be removed	...	...	...	341
Manure receptacles to be provided or repaired	...	...	...	48
Dangerous premises to be reported to City Surveyor's Department	...	...	...	837
Defective Fittings to be reported to Water Department	...	...	...	1,020
Other Work to be done	...	...	...	170
Total	...	...	...	118,844

In connection with the defects discovered notices were issued as follows :—

Preliminary notices	...	...	...	...	15,604
Reminders	...	...	...	...	1,578
Statutory notices	...	...	...	...	4,998

Two hundred and six summonses were issued. Magistrates' Orders to do the work were made in 28 of these. In the remaining cases the work was done without an order.

**COURT CLEANSERS.** The staff of Court Cleansers who also carry out stripping and limewashing after infectious disease at the default or request of the owners have during the past year carried out 12,184 cleansings of courtyards on the payment scheme in force.

**SEPARATE WATER SUPPLIES TO HOUSES WITH SCULLERIES.** A separate supply of water was provided in upwards of 1,400 houses under Section 27, of the Birmingham Corporation Act, 1914 at a total cost of £7,430 14s. 6d. the Corporation paying one-third of this amount.

**ST. MARY'S CHURCHYARD.** A recent private Act of Parliament empowering the Governors of the General Hospital to acquire this churchyard as a building site has necessitated the removal of the remains from the vaults and graves before the site could be used. Some 333 bodies were removed in separate cases from private vaults and graves and re-interred at Witton Cemetery, in addition 724 boxes containing approximately the remains of about 7,000 persons were re-interred in a similar manner, under the constant supervision of inspectors of this Department. The whole of this work has been satisfactorily carried out during the past 18 months without a single complaint being received.

## ATMOSPHERIC POLLUTION.

Two sets of observations have been made during a number of years :—

A. By two smoke inspectors as to the amount of black smoke emitted from factory and other chimneys.

B. By the City Analyst on the impurities found each month in the rainfall.

The latter is done for the Meteorological Office and is comparable with similar observations taken in a number of other towns.

In regard to smoke from factory chimneys, the inspector is required to make an observation for one hour and record the duration of black smoke emitted. This is done to carry out the requirements of the Birmingham Corporation (Consolidation) Act, of 1883. The following table shows the number of observations made and the number in which excessive emissions were made during each of the past four years.

	1928.	1927.	1926.	1925.
Total number of observations ... ..	4857	4636	4716	4869
Excessive Smoke—				
From Boiler Fires ... ..	99	105	104	97
From Boilers and Furnaces ... ..	16	18	17	18
From Metallurgical Furnaces ... ..	35	49	48	93
Total number of excessive emissions ...	157	172	169	208
Number of prosecutions (include 2 for grit in 1926) ... ..	61	54	39	86
Convictions obtained ... ..	60	54	39	86
Total amount of fines ... ..	£114	£86 10s.	£86 10s.	£184
Average per case ... ..	£1/18/0	£1/12/0	£2/4/4	£2/2/9
Cautions given (include 5 for grit in 1928)	83	113	124	120

In carrying out his inspections, no prescribed sequence of visits is made to the various districts. Observations are taken either after complaint from householders or other persons affected or as the result of knowledge of old offenders. Thus special observation is kept upon chimneys, owners of which have recently been cautioned or prosecuted, to note improvement or otherwise. Where an offence is committed the inspector immediately visits the premises, interviews the person in charge, and endeavours to ascertain the cause of the smoke emission. If this be due to faulty or careless firing he advises the stokers, furnacemen, etc., and gives a demonstration of how to fire without producing smoke nuisance.

There are approximately 1,133 chimneys attached to the various works in Birmingham. About one-third of these (411) are in connection with metallurgical furnaces (muffles). The latter are frequent smoke offenders, although they are included among the class of trade exempted from prosecution under the Public Health (Smoke Abatement) Act, 1926. There appears to be some tendency in the modernising of plant in the City to the substitution of coke, oil, gas, and electricity, instead of coal for this type of furnace.

During the next few years it is probable that complaints of emission of grit from chimneys will be considerably increased in numbers. It must be noted that two prosecutions were taken and five cautions given in respect of this nuisance. So far, there are only two pulverising plants in the City.

The observations on the dirt content of the air at three separate sites in the City are fully recorded in the Annual Report of the City Analyst. The figures for the City compare favourably with those for other large manufacturing towns. From the accompanying extract it is obvious that considerable reduction can yet be made in the amount of soot in the atmosphere.

#### AVERAGE DEPOSIT PER MONTH. 1928.

	Tons per square mile.		Total.
	Undissolved.	Dissolved.	
Bournville Schools ... ..	3.7	5.9	9.6
Birmingham, West Heath ... ..	4.2	5.8	10.0
Birmingham, Post Office ... ..	21.8	13.1	34.9

The undissolved deposit referred to in the table consists of tarry, mineral and carbonaceous matter such as is produced by the incomplete combustion of coal. In the Centre of the City the undissolved portion is greatly in excess of the dissolved, while in the suburbs this proportion is reversed. The considerable difference between the total deposit of the Post Office recorder compared with those of Bournville and West Heath gives some indication of the pollution of the atmosphere in the City Centre, and the loss of sunlight entailed.

The Smoke Abatement Act of 1926 which came into operation in July, 1927, has strengthened the hands of local authorities in certain directions. In this Act the term smoke is defined to include soot, ash, grit and gritty particles. Power to take action in respect of grit has already been obtained by the Birmingham Corporation Act, 1922. In the case of *black* smoke, the defence of "best practical means" (Public Health Act, 1875) is omitted, and proceedings may be instituted when the smoke is not black if it is considered to create a nuisance.

## COMMON LODGING HOUSES.

One new common lodging house was opened during the year, and two others were discontinued, thus bringing the total number in the City to 31. As will be seen from the following table close supervision continues to be kept on these premises by the special inspector (who is also canal boats inspector). It is satisfactory to report upon the general high standard of cleanliness and sanitation which is obtained in these establishments. One case of infectious disease was reported, the patient being a man suffering from smallpox who had contracted the infection during the Western Road House outbreak.

It was not found necessary to resort to legal proceedings to remedy any of the contraventions which were found.

No. of houses on register (for males only)	...	...	...	27
No. of houses on register (for females only)	..	...	...	4
No. of lodgers allowed	...	...	...	2081
Registered during year	...	...	...	1
Closed during year	...	...	...	2
No. of visits by day	...	...	...	1476
No. of visits by night	...	...	...	100
Average number of persons found	...	...	...	1494
Contraventions of byelaws found and dealt with:—				
Paving, drains, wastepipes, cisterns, etc., requiring repair				619
Miscellaneous contraventions:—obstructed drains, accumulation of rubbish, etc.	...	...	...	5674
No. of summonses	...	...	...	0

## HOUSES LET IN LODGINGS.

Attention has been drawn in previous reports to the problem offered by the poorer class of houses let in lodgings. On the one hand, the premises are often of a poor character, unsuitable for occupation by the often considerable number of families living in them, with as a result a peculiar liability to the occurrence and recurrence of grave sanitary defects and offences. On the other hand, the tenants to whom the rooms are sublet are often subjected to a particularly flagrant form of profiteering, in the grossly exorbitant rents charged for rooms, nominally furnished, but with furniture and amenities of the meanest description. An attempt to deal with this grave problem was made in the local Bill brought before Parliament in the Spring of 1929; the clause proposed to restrict excessive rentals in such premises was however rejected—though the gravity of the abuse was not denied—on the grounds that general and not local legislation was needed to deal with the problem.

It is anticipated that new Byelaws, at present before the Ministry of Health will shortly come into effect, with regard to houses let in lodgings. The Byelaws will empower the local Authority to enforce better lighting, water supplies, cooking accommodation and other facilities making for the comfort and convenience of those forced to live in this class of house, and will enable the local Authority to lay the burden of such supply on the person deriving benefit from the sub-letting.

The following tabular statement indicates the number of houses on the register and the inspections made.

	1928.
Number of houses on register	559
Number of rooms let as single rooms	1,255
Number let two or more rooms together	1,140
Certified accommodation	5,424 persons
Number of visits	3,025
Notices for repairs	1,014
„ „ overcrowding	3
„ „ cleansing	142
„ „ provision for cooking	197
„ „ fire extinguishers	92
„ „ lighting on stairs	24
„ „ repairs to bedding	2

## CANAL BOATS.

The number of canal boats registered at Birmingham is slowly but steadily increasing, and with this increase is to be seen a gradual process of reconstruction including the conversion of the ordinary and steam boats to motor power, leading to improved living conditions,

Cargoes passing through Birmingham consist largely of general merchandise, motor car parts, oil and tar in bulk, sack loads of sugar and flour, milk, etc.

The general health of canal boat people is very good; no case of illness was discovered by the Inspector among the 3,522 persons who occupied the boats examined by him during the year. The one unfortunate feature inseparably associated with this section of the community is that of their lack of education. With a mobile dwelling, the boat remaining only an hour or two or a day at the various places en route, it is extremely difficult for the children to obtain even the rudiments of elementary schooling.

Owing to their mode of living and their almost constant dissociation from life ashore, this lack of education has not been noticed to hamper them in their work or enjoyment of life. They are frequently gifted with a retentive memory, and as a large percentage are unable to read or write sufficiently well to record correctly entries of cargo, this special faculty of memory proves an effective safeguard to them in their dealings.

As a class they are a well nourished, hardy and self-respecting people.

#### INSPECTION OF BOATS.

During the year 1928 the number of boats inspected on the canals within the City area was 1,194, and the number of inspections during each quarter is shown as follows:—

During the first quarter of the year 344 boats were examined.

„	second	„	„	317	„	„
„	third	„	„	232	„	„
„	fourth	„	„	301	„	„

Total ... 1,194

The 1,194 boats inspected were registered for the accommodation of 3,906 persons and when inspected were found to be carrying 1,420 men, 970 women, and 1,132 children, a total of 3,522 persons, represented in terms of adults as 2,956.

The following table shows the number of boats inspected during the last five years, giving the number of persons whom the boats were registered to accommodate and the actual number of occupants at the time of inspection.

Year.	No. of boats inspected.	Registered to carry (adults).	Actually occupied by			Total occupying.	Equivalent to adults.
			Men.	Women.	Children.		
1924	1,127	3,590	1,358	833	872	3,063	2,772
1925	1,150	3,712½	1,414	816	798	3,028	2,629
1926	1,081	3,464	1,216	797	888	2,901	2,457
1927	986	3,165	1,087	808	856	2,751	2,323
1928	1,194	3,906	1,420	970	1,132	3,522	2,956

Of the 1,194 boats inspected during the year it was found that 1,091 or 91 per cent. were in good condition and conforming with the Acts and Regulations, while in 103 or 9 per cent. of the total, various contraventions to a total of 241 were found, as set out in the table given subsequently.

Complaint notes were duly served on the owners in all cases.

During the year certificates were returned by owners signed by the various Canal Boat Inspectors, showing that 247 complaints had been remedied.

The following table shows the number and character of contraventions found and remedied during the year:—

Contraventions referring to				Outstanding and brought forward from 1927.	Found during 1928.	Remedied during 1928.	Carried forward to 1929.
Cabins requiring painting	...	...	...	18	68	74	12
Cabins requiring repairs	...	...	...	7	46	45	8
Requiring marking	...	...	...	13	54	59	8
Cabins leaking	...	...	...	6	37	36	7
Registration	...	...	...	—	10	10	—
Not producing certificates	...	...	...	—	3	3	—
Dirty cabins	...	...	...	—	2	2	—
Overcrowding	...	...	...	—	9	8	1
Separation of sexes	...	...	...	1	8	6	3
Water vessels	...	...	...	—	—	—	—
Pumps	...	...	...	—	—	—	—
Ventilation	...	...	...	—	3	3	—
No certificate identifying owner and boat	...	...	...	—	1	1	—
				45	241	247	39

It has not been necessary during the year to take any legal proceedings under the Canal Boats Acts or Regulations.

#### INFECTIOUS DISEASES.

No case of infectious disease was discovered in canal boats in Birmingham during the year under review.

#### REGISTRATION OF BOATS.

There was a net increase of 8 boats registered at Birmingham during the year, thus bringing the total up to 558.

The following are details of registration and re-registration :—

Registrations :—

New motor boats registered	...	...	...	...	...	4
New ordinary boats registered	...	...	...	...	...	5
New steam boats registered	...	...	...	...	...	—
Re-Registration	...	...	...	...	...	2
(2 boats from Brentford and Berkhamstead).						
					Total	11
Registration cancelled	...	...	...	...	...	3
Increase in number registered	...	...	...	...	...	8
Re-registration in Birmingham (Change of ownership)	...	...	...	...	...	4

The number of boats on the Birmingham Register for the last five years has been as follows :—

December 31st, 1924, Boats on register	...	534
„ 1925	...	537
„ 1926	...	551
„ 1927	...	550
„ 1928	...	558

The 558 boats on the register are classified as follows :—

Ordinary boats	...	...	...	...	...	483
Steam boats	...	...	...	...	...	3
Motor boats	...	...	...	...	...	72
					Total	558

It will be noticed that steam boats have now been reduced to three only, four of this type having been reconstructed and installed with motor engines.

#### FACTORIES AND WORKSHOPS.

(DR. MATTHEW BURN, Assistant Medical Officer of Health).

To see that those requirements of the Factory and Workshops Acts which come under the supervision of the local authority are carried out three inspectors are employed (two men and one woman), and a synopsis of the work done is tabulated below :—

##### I. INSPECTION OF FACTORIES, WORKSHOPS AND WORKPLACES.

Premises.	Number of		
	Inspections.	Written Notices.	Occupiers Prosecuted.
Factories (including Factory Laundries) ...	1,691	112	—
Workshops (including Workshop Laundries) ...	5,089	210	—
Workplaces (other than Outworkers' premises)	360	55	—
Re-Visits ... ..	3,853	—	—
Total ... ..	10,998	377	—

## II. DEFECTS FOUND IN FACTORIES, WORKSHOPS AND WORKPLACES.

Particulars.	Number of Defects.			Number of offences in respect to which Prosecutions were instituted
	Found.	Remedied.	Referred to H.M. Inspector.	
Nuisances under the Public Health Acts :—				
Want of cleanliness ... ..	1,408	1,383		
Want of ventilation ... ..	16	16		
Overcrowding ... ..	3	3		
Want of drainage of floors ... ..	5	3		
Other nuisances ... ..	632	620		
Sanitary accommodation :				
Insufficient ... ..	41	41		
Unsuitable or defective ... ..	1003	878		
Not separate for sexes ... ..	48	46		
Offences under the Factory and Workshop Acts :				
Illegal occupation of underground bakehouses	—	—		
Other offences ... ..	—	—		
Total ... ..	3,156	2,990	—	—

## SHOPS ACT, 1912-13 AND HOURS OF CLOSING ACT, 1928.

(Report by DR. T. N. V. PORTS, Senior Assistant Medical Officer of Health).

The work under the above Acts continued to be carried out by two whole-time Inspectors.

*Closing and Exemption Orders under the 1912 Act.*

These orders are the same as were in force in the previous year. The closing orders include pawnbrokers, and hay and corn dealers, who are required to close their shops on a half-holiday on a specified day in each week (a Wednesday or a Saturday being the day selected), and butchers who are required to close their shop at 8 p.m. on Friday nights and at 7 p.m. on all other nights of the week.

The exemption orders in force are those relating to grocers' shops and photographic studios which are freed from the necessity of closing for a weekly half-holiday.

Proceedings against butchers for keeping open after the hours permitted in the Order were taken in 19 cases with the following results:—

- 1 defendant was fined £5 for a third offence.
- 3 defendants were fined £3 each for a third offence.
- 3 defendants were fined £2 each for a second offence.
- 11 Defendants were fined £1 each for a first offence.
- 1 defendant was fined 10/- for a first offence.

A number of contraventions were reported under the 1912 Act for keeping shops open on the specified half-holiday in the weeks preceding Christmas, 1927.

Prosecutions were undertaken in thirty cases with the following results:—

- 27 defendants were fined 10/- each.
- 3 defendants were fined 5/- each.

*Shops (Hours of Closing) Act, 1928.*

The previous temporary legislation under the Acts of 1920 and 1921 was placed permanently on the Statute Book by the passing of the Shops (Hours of Closing) Act, 1928, on August 3rd, 1928.

This Act was passed as the result of the findings of the Royal Commission on the 1920-1921 Closing Acts, of which Alderman Sir David Brooks was a member.

The new legislation, while making the restrictions more stringent in some directions, still contains a number of "exemptions" which cause the inspectors some difficulty in carrying out the provisions of the Act.

The exemption which still allows sweets and sugar confectioneries to be sold until 9.30 p.m. (except Saturday when the hour is 10 p.m.), provides a loop-hole for the shop-keeper with a small mixed business. In this case a customer may enter the shop under the pretext of purchasing sweets and he may leave having purchased other articles in respect of which an earlier closing time was fixed.

Similarly the term "newly cooked provisions" in the Act gives ample scope for evasion. It is advised that this expression is to be interpreted to include *all* cooked meats, whether cold or hot, e.g., "à la mode beef," brawn, etc. Shops are kept open ostensibly for the sale of these provisions but surreptitious sales of a prohibited nature are of frequent occurrence.

Test purchases are not made by the Inspectors; any such course would obviously be most undesirable. But it is obvious that if customer and vendor were to co-operate to evade the Act the obtaining of conclusive evidence such as will satisfy the magistrates would often be fraught with considerable difficulty.

The concession embodied in the new legislation of allowing the sale of tobacco, table waters, etc., on licensed premises during the hours that intoxicating liquor is permitted by law to be served has to some extent reduced the number of complaints received at the Public Health Department.

A natural effect of this Clause has been the production of a certain amount of controversy with tobacconists in the vicinity who are compelled to close their shops at an earlier hour.

The clause permitting the sale of tobacco, matches and sweets during the performance in any theatre has also been the means of reducing complaints, of which large numbers were previously received.

Proceedings were taken under the above Act in 32 cases for keeping shops open after the closing hour with the following results:—

- 1 defendant was fined £5 for a fourth offence.
- 2 defendants were fined £2 each for a second offence.
- 3 defendants were fined £1 each for a second offence.
- 1 defendant was fined 15/- for a first offence.
- 19 defendants were fined 10/- each for a first offence.
- 4 defendants were fined 5/- each for a first offence.
- 1 defendant was fined 2/6 for a first offence.
- 1 summons was not served.

#### SCHOOLS.

No undue prevalence of infectious disease has occurred at any of the schools during the year. Diphtheria constitutes the chief of these maladies in Birmingham, and action taken at schools for the purpose of preventing its spread is described elsewhere (p. 58).

The Schools continue to be the main source of information regarding cases of measles, mumps, whooping cough and chicken pox, these diseases not being compulsorily notifiable by the medical attendant. The health visitors visit the homes of children suffering from these four contagia. Details of their work are given on page 25.

Full particulars as to the health of school children are given in the Annual Report of the School Medical Officer.

## IV. HOUSING.

The total number of new houses built in the City and certified as fit for habitation was 4,992, of which number 3,505 were built by the Municipality and 1,487 by private enterprise.

The following table shows the number built during each year since 1920 :—

		No. of houses erected by private enterprise.	Corporation houses.	Total.
1920	...	244	553	797
1921	...	426	970	1,396
1922	...	382	810	1,192
1923	...	556	1,621	2,177
1924	...	1,201	1,992	3,193
1925	...	1,774	3,215	4,989
1926	...	1,775	5,159	6,934
1927	...	2,445	4,007	6,452
1928	...	1,487	3,505	4,992
Total	...	10,290	21,832	32,122

The wards in which new houses have been built since 1920 are indicated below :—

	Ward.	Houses erected by private enterprise.	Corporation Houses.	Total.
Central Wards.	St. Paul's ... ..	2	—	2
	St. Mary's ... ..	4	—	4
	Duddeston and Nechells ... ..	—	—	—
	St. Bartholomew's ... ..	2	180	182
	St. Martin's and Deritend ... ..	—	—	—
	Market Hall ... ..	—	—	—
	Ladywood ... ..	—	—	—
Total Central Wards		8	180	188
Middle Ring.	Lozells ... ..	6	—	6
	Aston ... ..	17	—	17
	Washwood Heath ... ..	310	969	1279
	Saltley ... ..	66	2457	2523
	Small Heath ... ..	97	1227	1324
	Sparkbrook ... ..	2	—	2
	Balsall Heath ... ..	9	—	9
	Edgbaston ... ..	467	—	467
	Rotton Park ... ..	91	—	91
	All Saints' ... ..	20	—	20
Total Middle Ring		1085	4653	5738
Outer Ring.	Soho ... ..	103	—	103
	Sandwell ... ..	239	277	516
	Handsworth ... ..	508	110	618
	Perry Barr ... ..	21	—	21
	Erdington North ... ..	900	3716	4616
	Erdington South ... ..	361	816	1177
	Yardley ... ..	650	2490	3140
	Acocks Green ... ..	1024	4448	5472
	Sparkhill ... ..	1885	2778	4663
	Moseley and Kings Heath ... ..	906	1466	2372
	Selly Oak ... ..	537	—	537
	King's Norton ... ..	290	560	850
	Northfield ... ..	1194	290	1484
	Harborne ... ..	579	48	627
Total Outer Ring		9197	16999	26196
Grand Total		10290	21832	32122

The following table indicates the varying degree of activity in new housing since 1901 :—

				Average Number of New Houses erected.	Average New Houses per 100,000 of population.
1901-05	...	...	...	3180	410
1906-10	...	...	...	2810	345
1911-15	...	...	...	1183	137
1916-20	...	...	...	335	37
1921-25	...	...	...	2589	275
1926	...	...	...	6934	722
1927	...	...	...	6452	665
1928	...	...	...	4992	511

There is still a considerable shortage of houses in the City. This makes it difficult as yet to recommend the closing and demolition of houses which are not in good repair. Under present circumstances, if it is possible to repair and keep inhabited even a house that has only a relatively short further lease of life, such an alternative to closure has to be adopted rather than add to the continued shortage of houses.

11 properties were repaired either in default of or by agreement with the owners during the year at a cost of over £1,500 and arrangements made for the cost of this work to be paid for by the owners by instalments spread over a number of years.

218 notices were served under Section 3, Housing Act, 1925, calling upon owners to remedy defects in their houses. In 28 cases the owners served counter-notices electing to close rather than repair.

#### HOUSING IN 1928.

Number of new houses erected during the year 1928—

(a) Total	...	...	...	...	...	...	...	...	4,992
(b) With State assistance under the Housing Acts—									
(1) By the Local Authority	...	...	...	...	...	...	...	...	2,995
(2) By other bodies or persons	...	...	...	...	...	...	...	...	950

#### 1. UNFIT DWELLING HOUSES.

Inspection—(1) Total number of dwelling-houses inspected for housing defects (under Public Health or Housing Acts)	...	...	...	...	...	...	...	...	...	38,488
(2) Number of dwelling-houses which were inspected and recorded under the Housing (Consolidated) Regulations, 1925	...	...	...	...	...	...	...	...	...	5,909
(3) Number of dwelling-houses found to be in a state so dangerous or injurious to health as to be unfit for human habitation	...	...	...	...	...	...	...	...	...	14
(4) Number of dwelling-houses (exclusive of those referred to under the preceding sub-heading) found not to be in all respects reasonably fit for human habitation	...	...	...	...	...	...	...	...	...	28,363

#### 2. REMEDY OF DEFECTS WITHOUT SERVICE OF FORMAL NOTICES.

Number of defective dwelling-houses rendered fit in consequence of informal action by the Local Authority or their Officers	...	...	...	...	...	...	...	...	...	23,399
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#### 3. ACTION UNDER STATUTORY POWERS.

##### A. Proceedings under Section 3 of the Housing Act, 1925.

(1) Number of dwelling-houses in respect of which notices were served requiring repairs	218
(2) Number of dwelling-houses which were rendered fit after service of formal notices—	
(a) By owners	121
(b) By Local Authority in default of owners	20
(3) Number of dwelling-houses in respect of which Closing Orders became operative in pursuance of declaration by owners of intention to close	28

## B. Proceedings under Public Health Acts.

(1) Number of dwelling-houses in respect of which notices were served required defects to be remedied	... ..	6,120
(2) Number of dwelling-houses in which defects were remedied after service of formal notices—		
(a) By owners	... ..	5,422
(b) By Local Authority in default of owners	... ..	15

## C. Proceedings under Sections 11, 14 and 15 of the Housing Act, 1925.

(1) Number of representations made with a view to the making of Closing Orders	...	14
(2) Number of dwelling-houses in respect of which Closing Orders were made	... ..	14
(3) Number of dwelling-houses in respect of which Closing Orders were determined, the dwelling-houses having been rendered fit	... ..	0
(4) Number of dwelling-houses in respect of which Demolition Orders were made	... ..	0
(5) Number of dwelling-houses demolished in pursuance of Demolition Orders	... ..	0

## V. INSPECTION AND SUPERVISION OF FOOD.

### THE MILK SUPPLY.

(DR. MATTHEW BURN, Assistant Medical Officer of Health).

Almost the whole of the milk supply comes from an area of 50 miles' radius from the centre of the City, the remaining small amount coming from farms lying near or within the boundary. Some 80 per cent. of the milk is road-borne and is delivered once daily, the remaining portion being sent in by rail.

#### BACTERIOLOGICAL EXAMINATION OF MILK.

There were 524 samples of raw milk submitted for bacteriological examination, and analysis of the results shews that although generally there has been no definite rise in the standard of bacterial purity a number of firms continue to receive raw milk of a very high standard.

There were 868 samples of pasteurised milk examined bacteriologically, and an analysis of the results would indicate—

(1) As in past years, the "positive holder" process continues to give more uniform results, and the percentage of bacteria destroyed is generally higher than in the other types.

(2) A definite improvement in the quality of the milk from "positive holders," as compared with 1927, as evidenced by a 40 per cent. reduction of bacteria per c.c.

(3) That with the "Flow Retarder Type" the satisfactory results have not been maintained, as evidenced by a 55 per cent. increase of bacteria per c.c.

(4) That in the "Flash Point Type" the high bacterial counts have been continued, the individual results shewing extreme variation.

The check offered by bacteriological examination is a valuable one and incidentally proves of much benefit to the producer. Such benefits can be readily appreciated when it is remembered that samples are taken during the various processes of pasteurisation; and variation in results, which are not in conformity with the stage of treatment, would indicate, in the main, where the system is faulty. Such results and indications are made known to the producers who are usually very willing and desirous to act on any advice given.

#### REGISTRATION AND INSPECTION OF MILKSHOPS.

A synopsis of the work of the two inspectors who were wholly employed during the year to see that the enactments contained in the various Acts and Orders relating to milk supply are properly carried out is given below :—

No. of Milkshops on Register	...	...	...	...	...	3,513
No. of Wholesale Purveyors on Register	...	...	...	...	...	100
No. of Retail Purveyors on Register	...	...	...	...	...	847
New milkshops registered	...	...	...	...	...	71
New Wholesale Purveyors registered	...	...	...	...	...	22
New Retail Purveyors registered	...	...	...	...	...	107
Milkshop transfers	...	...	...	...	...	302
No. of visits to Milkshops	...	...	...	...	...	4,525
No. of visits to Wholesale Purveyors	...	...	...	...	...	533
No. of visits to Retail Purveyors	...	...	...	...	...	1,669
No. of visits to Railway Stations	...	...	...	...	...	83
Milk vessels examined at Milkshops	...	...	...	...	...	10,090
Milk churns examined at stations	...	...	...	...	...	938
Milkshops and Stores limewashed	...	...	...	...	...	32
Sanitary defects found	...	...	...	...	...	12
Other contraventions	...	...	...	...	...	7
Cases of infectious disease reported	...	...	...	...	...	33
Milkshops registrations cancelled	...	...	...	...	...	200
Wholesale Purveyors' registrations cancelled	...	...	...	...	...	5
Retail Purveyors' registrations cancelled	...	...	...	...	...	92

## MILK (SPECIAL DESIGNATIONS) ORDER, 1923.

Below is given the number of dealers in the City licensed under the above Order :—

Producers of Certified Milk	...	...	...	...	...	...	...	1
Dealers in Certified Milk	...	...	...	...	...	...	...	5
Producers of " Grade A " Milk	...	...	...	...	...	...	...	2
Dealers in " Grade A " Milk	...	...	...	...	...	...	...	7
Dealers in " Grade A " (Tuberculin Tested) Milk	...	...	...	...	...	...	...	3
Dealers in Pasteurised Milk	...	...	...	...	...	...	...	49
Supplementary Licences in Pasteurised Milk	...	...	...	...	...	...	...	2
Dealers in " Grade A " Pasteurised Milk	...	...	...	...	...	...	...	1

The prices of Graded Milks are given below :—

								Per pint.
Certified	...	...	...	...	...	...	...	5d.
Grade A (Tuberculin Tested)	...	...	...	...	...	...	...	4½d.
Grade A	...	...	...	...	...	...	...	4½d.
Grade A (Pasteurised)	...	...	...	...	...	...	...	4d.
Pasteurised	...	...	...	...	...	...	...	4½d.

## MILK AND DAIRIES ORDER, 1926.

All matters referable to dairies come under the control of the milk inspectors of the Public Health Department, matters relating to cows and cowsheds coming under the supervision of the Veterinary Department.

Generally it may be said that the Order is being complied with in a satisfactory manner, and a steadily rising standard of cleanliness is being obtained in these dairies.

## PROSECUTIONS.

One prosecution was undertaken during the year.

In this case the owner of a milk shop was prosecuted for opening bottles of sterilized milk and selling part of the contents loose. Fined 2/6.

## INSPECTION OF COWS AND COWSHEDS IN THE CITY.

(Report by MR. BRENNAN DEVINE, F.R.C.V.S., Veterinary Superintendent).

Systematic inspection of cowsheds and cattle in City Dairies which are registered under the Milk and Dairies Order, 1926, was carried out during the year.

The following table shows the number of cowsheds, the number of visits paid by the Veterinary Inspectors to City Dairies, and the number of cows in City Dairies at 31st December, 1928, as compared with the previous year :—

				Dairy farms.	Cow sheds.	Dairy Cows.	Visits to sheds.
31st December, 1928	...	...	...	108	224	1,532	2,566
31st December, 1927	...	...	...	112	234	1,531	2,793

## Cows.

The health, condition, and cleanliness of the cows inspected has been good, and in only one case was it found necessary to write to the owner calling attention to the insanitary condition of his cows.

*Mastitis.* Twenty-nine cows were found to be affected with acute catarrhal mastitis. In each case the owners were notified that the milk from these cows should not be sold for human consumption, and where possible the animals were kept isolated from the rest of the herd.

*Foot and Mouth Disease.* Birmingham was still included in an Infected Area on January 1st and the restrictions remained in force until February 9th, since which date the City Area has been free from restrictions until December 31st. During the period that the restrictions were in force it was deemed advisable to temporarily discontinue the regular veterinary inspection of City Dairies.

*Tuberculosis Order, 1925.* This Order provides for the notification by the owner of cattle affected with tuberculosis and for the payment of compensation in respect of tuberculous cows slaughtered.

23 suspected cases were reported and on examination 19 cows in City Dairies were found affected with tuberculosis and were dealt with under the Order. In each case the diagnosis of tuberculosis was confirmed as under:—

(a)	Tuberculosis of the udder	...	...	...	...	8 cows.
(b)	Tuberculous emaciation	...	...	...	...	9 „
(c)	Chronic cough, etc.	...	...	...	...	2 „
						<hr/>
						19 „
						<hr/>

#### COWSHEDS.

These have been regularly inspected, special attention being paid to adequate lighting, ventilation, including air space, and the cleansing, drainage, and water supply.

In four cases it was found necessary to write to the Cow-keepers requesting them to more thoroughly cleanse their sheds.

The limewashing of all the cowsheds was carried out during the Summer months while the cows were out at grass.

220 sheds have been given Registration Numbers and 4 other sheds are awaiting alterations prior to Registration. During the year 2 other buildings have been converted into cowsheds and one shed has been repaired according to instructions.

*New Cowkeepers.* Two applications were received from dairymen to commence keeping cows in the City for the sale of milk. In both cases the sheds have been altered to make them suitable for registration and the applicants' names have been placed on the register.

*Dairies Discontinued.* Eleven dairymen have discontinued keeping cows, and their names have been removed from the register.

*Changes of Occupancy.* In three cases the farms have changed hands, and the register has been rectified accordingly.

*Added Area of Perry Barr.* Five farmers in the part of Perry Barr annexed to the City April 1st, 1928, were found to be keeping dairy cows for the sale of milk and were given particulars of the alterations necessary to make their sheds comply with our requirements for registration. In two cases the sheds have been altered and registered, and in the other three cases the suggested alterations affecting four sheds have not yet been completed and the sheds are not yet on the register.

#### TUBERCULOSIS AND THE MILK SUPPLY.

The precautions to reduce the amount of tubercle infection in the milk sold in the City have been continued on similar lines as in previous years, namely:—

- (a) The detection of infection in the milk supply both from city dairies and outside sources.
- (b) The eradication of tuberculosis from dairy herds supplying milk to Birmingham.

##### (a) THE DETECTION OF INFECTION IN THE MILK SUPPLY.

*Milk and Dairies (Consolidation) Act, 1915.* Section 8 of this Act empowers Local Authorities to take samples of milk and during the year 1,056 mixed samples of milk were taken at City Dairies and from supplies sent to Birmingham Depots from outside sources, as follows:—

Source.	Mixed Samples.	Result of Exam. Free.	Exam. Infected.	Percentage Infected.
City Dairies	82	77	5	6.1
Gloucestershire	59	58	1	1.7
Shropshire	97	92	5	5.2
Staffordshire	406	358	48	11.8
Warwickshire	313	283	30	9.6
Worcestershire	78	72	6	7.7
Various	21	20	1	4.8
<hr/>				
Year ended 31st December, 1928	1,056	960	96	9.1
<hr/>				
Year ended 31st December, 1927	899	835	64	7.1
<hr/>				

(NOTE.—In connection with the 5 infected samples from City Dairies, 5 cows were found affected with tuberculosis and were slaughtered under the Tuberculosis Order).

Section 4 of the Act provides that we may send a Veterinary Inspector to be present when an inspection is made by a Local Authority of a herd from which infected milk is received. As a result of 91 of the samples of milk from outside sources being found infected, notification was sent in each case to the county authorities, and the subsequent action taken involved 100 visits to farms by our Veterinary Inspectors and the examination of 2,744 cows, 80 of which were found to be affected with tuberculosis and slaughtered. These affected cows were traced to 69 farms, but in the other 22 cases the affected cows were not discovered. Further depôt samples have been taken and in each case found to be free, proving that in these 22 cases the offending animals had been disposed of, or had gone "dry" between the time the infected depot samples were taken and our visits to the farms.

#### (b) THE ERADICATION OF TUBERCULOSIS FROM DAIRY HERDS.

In order to minimise the risk of tuberculous infection in the City's milk supply, the above scheme provides for the free tuberculin testing by the Veterinary Staff of the herds of any owners supplying milk to the City, and who are willing to comply with the conditions necessary to make the scheme a success.

At the beginning of the year there were 21 herds comprising 713 cows in this scheme. During the year 2 new herds were brought into the scheme, and 4 herds were withdrawn owing to a high percentage of reactors.

19 herds comprising 688 cows were continuing in the Scheme on 31st December; of these 7 are tested for "Certified" or Grade "A" (Tuberculin Tested) Milk.

The following is a list of herds dealt with under the scheme:—

No.	Approx. No. in Herd.	Certified and Grade A (T.T.) Milk.	Breeding Herds.	Non- Breeding.	Mixed Herds.	City Dairies.	Outside Dairies.
1	...	100	1	—	—	1	—
2	...	16	—	1	—	1	—
3	...	44	—	—	1	1	—
4	...	65	1	—	1	—	1
5	...	25	1	1	—	—	1
6	...	20	—	—	1	—	1
7	...	9	—	1	—	1	—
8	...	25	1	1	—	—	1
9	...	13	—	1	—	—	1
10	...	32	1	—	1	—	1
11	...	4	—	1	—	—	1
12	...	23	—	—	1	1	—
13	...	30	—	1	—	—	1
14	...			Discontinued.			
15	...	100	—	—	1	1	—
16	...	41	—	—	1	—	1
17	...			Discontinued.			
18	...	17	1	1	—	—	1
19	...			Discontinued.			
20	...	67	—	1	—	—	1
21	...			Discontinued.			
22	...	41	—	1	—	1	—
23	...	16	1	—	1	—	1
—	—	—	—	—	—	—	—
19	...	688	7	10	1	8	7
—	—	—	—	—	—	—	—

NOTE.—In addition, two other herds comprising 90 cows were submitted for testing, but owing to the high percentage of reactors at first test they were not brought into the scheme.

### COW TESTING.

The testing of the herds which come under the Scheme is carried out half-yearly:—

						Cows Tested.	Passed.	Failed.	Doubtful.
1	...	...	...	...	...	307	303	1	3
2	...	...	...	...	...	37	24	13	—
3	...	...	...	...	...	122	113	9	—
4	...	...	...	...	...	97	86	11	—
5	...	...	...	...	...	62	62	—	—
6	...	...	...	...	...	36	25	10	1
7	...	...	...	...	...	23	13	10	—
8	...	...	...	...	...	88	82	6	—
9	...	...	...	...	...	25	21	3	1
10	...	...	...	...	...	63	62	1	—
11	...	...	...	...	...	8	8	—	—
12	...	...	...	...	...	55	46	9	—
13	...	...	...	...	...	49	43	6	—
14	...	...	...	...	...	9	6	3	—
15	...	...	...	...	...	197	186	11	—
16	...	...	...	...	...	80	67	13	—
17	...	...	...	...	...	121	102	19	—
18	...	...	...	...	...	34	33	1	—
19	...	...	...	...	...	Discontinued	—	—	—
20	...	...	...	...	...	138	120	11	7
21	...	...	...	...	...	Discontinued	—	—	—
22	...	...	...	...	...	89	66	23	—
23	...	...	...	...	...	44	30	11	3

Herds tested but not brought into the Scheme:—

24	...	...	...	...	...	78	40	38	—
25	...	...	...	...	...	12	8	4	—
						<u>          </u>	<u>          </u>	<u>          </u>	<u>          </u>
					Totals	1,774	1,546	213	15
						<u>          </u>	<u>          </u>	<u>          </u>	<u>          </u>
					%		87.15	12	.85
						<u>          </u>	<u>          </u>	<u>          </u>	<u>          </u>

## SUMMARY.

Dairy Farms in the City	...	...	...	...	...	...	...	...	108
Milking Cows	...	...	...	...	...	...	...	...	1,532
Visits to Sheds	...	...	...	...	...	...	...	...	2,566
Cows in City Dairies affected with Mastitis						...	...	...	29
Cows in City Dairies affected with Tuberculosis						...	...	...	19
Samples of Mixed Milk taken	...	...	...	...	...	...	...	...	1,056
Samples of Mixed Milk taken found to be infected						...	...	...	96
Visits to Outside Farms	...	...	...	...	...	...	...	...	100
Herds tested	...	...	...	...	...	...	...	...	25
Cows tested	...	...	...	...	...	...	...	...	1,774
Cows which passed the test	...	...	...	...	...	...	...	...	1,546
Cows which failed to pass the test						...	...	...	228

## INSPECTION OF MEAT AND OTHER FOODS.

(Report by MR. BRENNAN DEVINE, F.R.C.V.S., Veterinary Superintendent).

## SLAUGHTERHOUSES.

At 31st December, 1928, there was a total of 98 private slaughterhouses and 2 knackeries in use in the City area :—

Registered Slaughterhouses	...	...	...	...	...	...	50
Annually Licensed Slaughterhouses	...	...	...	...	...	...	48
Knackeries	...	...	...	...	...	...	2
							100

During the year 8,476 visits of inspection were made to private slaughterhouses and knackeries.

#### REGISTERED FOOD PREPARATION PREMISES.

Section 33 of the Birmingham Corporation Act, 1914, provides that:—

- (1) Any premises used or proposed to be used for the preparation or manufacture of potted or preserved meat, fish, or other food, intended for the purpose of sale shall be registered by the owner or occupier thereof with the Corporation from time to time, and no premises shall be used for the purposes aforesaid unless the same are registered as aforesaid.

The following is a summary of the Food Preparation Premises registered at 31st December, 1928:—

	No. in City.
A-la-mode Beef ... ..	112
Sausage Manufacturers ... ..	39
Pork Pie Manufacturers ... ..	57
Tripe Dressers ... ..	52
Potted and Cooked Meat Manufacturers ... ..	122
Ham Manufacturers ... ..	5
Jam Manufacturers ... ..	1
31st December, 1928 ... ..	388
31st December, 1927 ... ..	367

*Shops.* In addition to the Registered Food Preparation Premises the following shops on our list were regularly visited by our Inspectors during the year:—

Beef and Pork Butchers ... ..	830
Grocers ... ..	1,235
Hucksters ... ..	2,234
Green Grocers ... ..	1,125
Confectioners ... ..	66
Coffee Houses ... ..	376
Restaurants ... ..	86
Fishmongers ... ..	39
Caterers ... ..	25
Fried Fish, etc. ... ..	562
	6,578

#### VISITS OF INSPECTION.

During the year 98,154 visits of inspection were paid by the Inspectors as compared with 75,411 visits in 1927, namely:—

	Visits of Inspection.	
	1928.	1927.
Slaughterhouses ... ..	8,478	6,626
*Beef and Pork Butchers ... ..	28,233	23,646
Fishmongers ... ..	6,834	5,770
Fruiterers, etc. ... ..	9,023	7,808
Grocers, etc. ... ..	1,976	1,199
Ham and Bacon Dressers ... ..	991	804
Street Hawkers ... ..	23,185	17,590
Cold Stores ... ..	6,431	4,593
Food Preparation Premises ... ..	7,607	5,234
Fish Friers ... ..	2,570	2,084
Horseflesh Shops ... ..	10	9
Hucksters, etc. ... ..	2,816	48
	98,154	75,411
*Includes visits by request, viz. :—	1,457	1,449

## SLAUGHTERING OF ANIMALS FOR FOOD.

The following returns show the number of animals slaughtered in the Public Slaughterhouses during the year 1928 and the preceding year :—

## CITY MEAT MARKET.

		Beasts.	Calves.	Sheep & Lambs.	Pigs.	Total.
1928	...	48,087	63,973	262,688	72,562	447,310
1927	...	43,835	56,000	265,385	41,134	406,354
1898	...	20,175	10,857	100,458	11,703	143,193
Increase %		138.3	489.2	161.5	520	212.4

(NOTE.—The City Meat Market and Public Slaughterhouses were opened for business December 27th, 1897, and the increase per cent. is since the year 1898).

Return of animals slaughtered during the two heaviest weeks of 1928 :—

Week ended.		Beasts.	Calves.	Sheep & Lambs.	Pigs.	Total.
Sept. 15th	...	928	1,347	8,819	1,313	12,407
Sept. 29th	...	1,128	1,888	6,392	1,847	11,255

During practically the whole of the year the Abattoir has been working to its fullest capacity and as the number of animals slaughtered there is increasing from year to year I consider that the slaughtering space in the Market should be increased.

## PUBLIC SLAUGHTERHOUSE, MONTAGUE STREET.

		Beasts.	Calves.	Sheep and Lambs.	Pigs.	Total
1928	...	13	—	442	3,660	4,115
1927	...	9	3	71	2,939	3,022

Total number of animals slaughtered in Private and Public Slaughterhouses during the year :—

	Beasts.	Calves.	Sheep & Lambs.	Pigs.	Total.
Public Slaughterhouses	48,100	63,973	263,130	76,222	451,425
Private Slaughterhouses	7,875	4,697	63,757	254,473	330,802
	55,975	68,670	326,887	330,695	782,227

## IMPORTED MEAT.

During the year the following imported meat was sold in Birmingham :—

			Tons.	Cwts.	Qrs.
Beef	...	...	10,897	16	2
Mutton, etc.	...	...	9,158	13	2
Offal	...	...	594	5	2
			20,650	15	2

*Caseous Lymphadenitis.* During the year we met with several cases of Caseous Lymphadenitis on our Markets. We regularly receive from the Port Sanitary Authorities notification of any Imported Mutton being forwarded to Birmingham. Following these notifications we arrange with the firms concerned for the inspection of each consignment.

Unless there is reason to suspect the disease in any particular consignment we usually examine 10 per cent. of the whole, but if the disease is found then the whole of the consignment is examined.

Up to the 31st December, 89 carcasses of Imported Mutton, weighing approximately 2 tons 7 cwts., were found to be affected with Caseous Lymphadenitis and sent to Montague Street for destruction,

## UN SOUND MEAT, ETC.

Return of Diseased Organs destroyed as unfit for human food :—

		Bulls.	Cows.	Calves.	Swine.	Sheep.	Goats.	Total.
<i>Lungs—</i>								
Tuberculosis	... ..	687	2,076	87	4,481	—	—	7,331
Other Conditions	... ..	410	1,249	501	1,174	748	4	4,086
<i>Hearts—</i>								
Other Conditions	... ..	120	379	465	996	843	3	2,806
<i>Bowels—</i>								
Tuberculosis	... ..	503	1,577	25	3,993	—	—	6,098
Other Conditions	... ..	135	423	339	259	514	4	1,674
<i>Stomachs—</i>								
Tuberculosis	... ..	505	1,585	25	4,034	—	—	6,149
Other Conditions	... ..	133	418	340	281	512	4	1,688
<i>Spleens—</i>								
Tuberculosis	... ..	506	1,584	77	4,483	—	—	6,650
Other Conditions	... ..	141	438	499	1,137	866	5	3,086
<i>Livers—</i>								
Tuberculosis	... ..	563	1,690	79	4,478	—	—	6,810
Other Conditions	... ..	2,309	6,927	570	2,334	11,238	4	23,382
<i>Kidneys—</i>								
Tuberculosis	... ..	456	1,382	72	324	—	—	2,234
Other Conditions	... ..	183	566	752	441	1,697	8	3,647
<i>Udders—</i>								
Tuberculosis	... ..	—	290	—	173	—	—	463
Other Conditions	... ..	—	317	—	334	—	—	651
<i>Heads—</i>								
Tuberculosis	... ..	443	1,337	69	4,883	—	—	6,732
Other Conditions	... ..	148	454	366	133	204	4	1,309
<i>Fore Quarters—</i>								
Tuberculosis	... ..	16	56	5	37	—	—	114
Other Conditions	... ..	9	32	—	9	9	—	59
<i>Hind Quarters—</i>								
Tuberculosis	... ..	10	46	—	2	—	—	58
Other Conditions	... ..	14	59	2	14	5	—	94
<i>Carcases—</i>								
Tuberculosis	... ..	96	305	33	189	—	—	623
Other Conditions	... ..	108	336	487	357	1,480	7	2,775

## MISCELLANEOUS.

The quantity of miscellaneous meat surrendered was approximately 13 tons, of which the greater part was considered unfit owing to putrefaction.

*Weight of Meat Surrendered.* The total weight of meat surrendered during the year was 593 tons, as compared with 603 tons during 1927. This included 257 carcasses of calves for immaturity. The number of cases of surrender is 11,558.

*Frozen Meat.* During the year there were 4 tons 9 cwts. of frozen and chilled meat surrendered for putrefaction.

Return of Fish, Fruit, Vegetables, Poultry, etc., destroyed as unfit for food :—

No. of Surrenders.		Tons.	Cwts.	Qrs.	Lbs.
594	Fish ... ..	71	6	1	2
1,125	Poultry, etc. ... ..	19	17	2	17
168	Fruit and Vegetables ... ..	77	16	3	25
88	Miscellaneous ... ..	3	1	0	12
1,975		172	2	0	0

## SHELL FISH, ETC.

The following is a summary showing the samples, taken during the year and submitted for bacteriological examination, of shell fish offered for sale on our Market :—

Number of Samples.	Samples.	English.	ORIGIN. Irish.	Other Sources.
5	Oysters ... ..	3	—	2
73	Mussels ... ..	52	18	3
2	Cockles ... ..	2	—	—
4	Periwinkles ... ..	4	—	—
—	—	—	—	—
84	—	61	18	5
—	—	—	—	—

As a result of the bacteriological examination, mussels from Oranmore Bay, Ireland, and Penclawdd, South Wales, were prohibited from being offered for sale on our Markets.

#### MISCELLANEOUS.

*Sugar Sweepings.* During the year we received notification of 271 bags of Sugar Sweepings being forwarded from the Port of London to Birmingham. These were controlled by us until they had been submitted to a special refining and filtration process when they were examined and passed as fit for human consumption.

*Food Poisoning.* During the year we received and investigated a number of complaints respecting the condition of foodstuffs, which were alleged to have been the cause of food poisoning.

*Public Health (Meat) Regulations.* The standard of the meat trade and of the butchers' shops in Birmingham has greatly improved since the introduction of the Public Health (Meat) Regulations. The new shops which are being opened are mostly of the fixed window type and in many cases existing shops with open windows have been converted into the fixed window type.

*Sale of Food Order, 1921.* Part 3 of this Order provides for the labelling of Imported Produce. A notice has been drafted calling the attention of butchers, and other persons concerned, to the requirements of the Order for the special marking of Imported Meat.

*Perry Barr.* In the part of Perry Barr annexed to the City, 1st April, 1928, there are 18 pig keepers and 13 farmers owning 15 farms. There are no private slaughterhouses in the added district.

#### PROSECUTIONS.

The following is a summary of prosecutions in which convictions were obtained for offences under the Public Health Acts and the Public Health (Meat) Regulations:—

	Number of Convictions.	Total of Fines.
Diseased Meat ... ..	3	£68
Public Health (Meat) Regulations	1	£1

## VI. PREVALENCE OF, AND CONTROL OVER, INFECTIOUS DISEASE.

### INFECTIOUS DISEASES GENERALLY.

(Report by DR. T. N. V. POTTS, Senior Assistant Medical Officer of Health).

No outstanding variation in the general incidence of the notifiable infectious diseases took place during the year.

Notification through the schools of whooping cough shewed an increase of nearly 4,000 cases upon the figure for the previous year, and in the case of measles there was a decrease in the number reported of slightly over 4,000. A continuance of the low incidence of the mild type of scarlet fever and a further slight decline in the number of cases of encephalitis lethargica are to be noted. Smallpox was introduced into the City early in the year, but by close supervision of contacts and immediate vaccination the outbreak was strictly limited.

Disease.	Deaths in 1928	Average 1918-27.	Above or below the average
Enteric Fever ... ..	3	4	— 1
Smallpox ... ..	1	0	+ 1
Measles ... ..	41	122	— 81
Scarlet Fever ... ..	5	34	— 29
Whooping Cough ... ..	163	162	+ 1
Diphtheria ... ..	70	121	— 51
Pulmonary Tuberculosis ... ..	840	931	— 91
Other Forms of Tuberculosis ... ..	125	153	— 28
Influenza ... ..	130	590	— 460

The prevalence of the notifiable diseases is shown in the next table:—

Disease.	Cases in 1928.	Average 1918-27.	Above or below the average
Enteric Fever ... ..	20	31	— 11
Smallpox ... ..	54	1	+ 53
Scarlet Fever ... ..	1521	2590	— 1069
Diphtheria ... ..	1552	1521	+ 31
Erysipelas ... ..	466	387	+ 79
Puerperal Fever ... ..	84	129	— 45
Puerperal Pyrexia ... ..	133	Only recently notifiable.	
Ophthalmia Neonatorum ... ..	530	385	+ 145
Pulmonary Tuberculosis ... ..	1361	1968	— 607
Other Forms of Tuberculosis ... ..	245	328	— 83
Acute Primary or Influenzal Pneumonia ... ..	2275	Only recently notifiable.	
Cerebro-Spinal Fever ... ..	12	13	— 1
Acute Poliomyelitis ... ..	6	17	— 11
Polioencephalitis ... ..	1	Only recently notifiable.	
Encephalitis Lethargica ... ..	41	„	„
Malaria ... ..	9	„	„
Dysentery ... ..	15	„	„

The elementary school teachers reported the following cases:—

Measles ... ..	5,030
German Measles ... ..	325
Whooping Cough ... ..	6,463
Chicken Pox ... ..	5,555
Mumps ... ..	5,014

For particulars of the visits paid to these cases see Health Visitors' Work, page 25.

### ENTERIC FEVER.

20 cases of enteric fever occurred in the City during the year. Of these, 12 were due to infection by the *Bacillus Typhosus*, 6 by the *Bacillus Paratyphosus B*, while in the remaining 2 interpretation of the agglutination reaction of the blood had been rendered unreliable as the result of previous inoculation of these patients whilst in the Army. Clinically both were definitely either Typhoid or Paratyphoid Fever.

Three deaths occurred giving a case mortality of 15 per cent. 2 were typhoid cases and the other a case of paratyphoid B.

The 20 patients were distributed evenly over the City and in only three of them was it possible to discover any common source of infection. Two of these were sisters and it is probable they had been infected by their mother. It appeared that the latter was a typhoid "carrier" only becoming "infectious" at intervals, and although stool examination negated this suggestion yet examination of her blood definitely demonstrated that she had been previously infected with the typhoid bacillus. The elder of the two sisters was admitted to hospital but died. The younger was also admitted to an Institution and unfortunately infected another child with typhoid. Both children recovered.

In 8 of the remaining cases it was ascertained that infection had probably been contracted while the patients had been away from home on business or on holiday, and that they became ill either immediately before or shortly after arrival home.

Two nurses, one at the Selly Oak Hospital and the other at the Carnegie Institute, contracted typhoid and paratyphoid B fever respectively. The source of infection was not discovered; in the case of the Carnegie Institute there had been no in-patients suffering from the disease. The nurse's home was outside the City and she had frequently visited that area. Both nurses recovered.

#### ENTERIC FEVER.

	Number of Cases.	Case rate per 1,000.	Number of Deaths.	Death-rate per 1,000.	Case mortality per cent.
1901-5 (Average)	544	.70	91	.12	16.7
1906-10 ...	242	.30	51	.06	21.1
1911-15 ...	90	.11	22	.03	24.4
1916-20 ...	22	.02	5	.01	22.7
1921-25 ...	30	.03	4	.00	13.3
1918 ...	23	.03	5	.01	21.7
1919 ...	34	.04	9	.01	26.5
1920 ...	12	.01	—	—	Nil
1921 ...	26	.03	5	.01	19.2
1922 ...	11	.01	3	.00	27.3
1923 ...	32	.03	4	.00	12.5
1924 ...	48	.05	5	.01	10.4
1925 ...	31	.03	4	.00	12.9
1926 ...	52	.05	3	.00	5.8
1927 ...	40	.04	4	.00	10.0
1928 ...	20	.02	3	.00	15.0

#### SMALLPOX.

58 cases of smallpox were notified during the year. A revision of diagnosis was made in 4 of these, giving a net total of 54 patients. The large majority (45) were admitted direct from a Poor-law Institution, viz.: Western Road House, where they had received the infection probably from a man entering the casual ward in an infective condition. The first case became ill early in January and the remaining 44 patients were attacked during the ensuing few weeks. Extensive vaccination of staff and inmates in this Institution was carried out. Contacts were kept under observation by the district inspectors, or, when they were leaving the City, the Medical Officer of Health of their destination was notified.

The usual difficulties of following up the vagrant class of no fixed abode were experienced. A rapid migration of these people to other localities is the invariable rule when they receive any inkling of either smallpox or vaccination. As the result of the systematic vaccination and supervision of contacts so far as was possible, and the wholehearted co-operation of the Chief Medical Officer to the Board of Guardians and his medical and lay colleagues, the outbreak was cut short within a few weeks of its inception.

Nine other cases occurred later in the year including one who was removed from a common lodging house to the Erdington House. In each case the immediate vaccination and supervision of contacts was effective in preventing the spread of infection.

One death occurred among the 54 patients.

The following table sets out the age periods and vaccinal condition of all the cases. The ages of the 9 persons said to have been re-vaccinated ranged from 51 to 81 years.

## SMALLPOX, 1928.—VACCINAL STATE OF PATIENTS.

Age Groups.		Vaccinal Condition.	
Ages.	No. of Cases.	Unvaccinated.	Vaccinated in infancy.
Under 15 ...	2	2	—
15—24 ...	1	1	—
25—34 ...	3	2	1
35 and over	48	9	39*
Total ...	54	14	40

\*Of these, 9 stated that they had been vaccinated since the primary vaccination in infancy. No further particulars could be verified; and the ages of these 9 persons ranged from 51 to 81 years.

## VACCINATION.

The following are the vaccination statistics for the year ending December 31st, 1927.

Births returned ...	17,954
Conscientious objections ...	3,353 or 18.7 per cent. of total.
Died unvaccinated ...	1,029
Successfully vaccinated ...	10,987, or 65.0 per cent. of survivors.
Insusceptible ...	125, or 0.7 „ „
Postponed by medical certificate ...	72, or 0.4 „ „
Removed to other districts ...	657, or 3.9 „ „
Lost sight of ...	436, or 2.6 „ „
Still under notice ...	1,295, or 7.7 „ „

## MEASLES.

There were 41 deaths recorded from this disease during 1928, giving a death-rate of .04 per 1,000. The number of cases of Measles in past years, together with the mortality rates, are set out in the following table.

	Number of Cases.	Number of Deaths.	Death-rate per 1,000.
1901-5 (Average)	?	279	.36
1906-10 ...	?	294	.36
1911-15 ...	4,822* (1912-1915)	419	.48
1916-20 ...	10,773*	168	.18
1921-25 ...	6,831*	121	.13
1919 ...	15,158	189	.20
1920 ...	7,144*	147	.16
1921 ...	4,618*	153	.17
1922 ...	4,147*	79	.09
1923 ...	7,787*	186	.20
1924 ...	5,969*	79	.08
1925 ...	11,636*	109	.11
1926 ...	6,980*	78	.08
1927 ...	9,032*	129	.13
1928 ...	5,030*	41	.04

\*Partial notification only through schools.

To a large extent the death-rate from Measles depends on the period of the year when the disease is prevalent and on the area involved. The death-rates last year in the different groups of wards were as follows:—

Central wards ...	.11
Middle ring ...	.03
Outer ring ...	.01

The ages at death are shown below:—

Under 1 year ...	13 deaths.
1 and under 2 years ...	17 „
2 and under 3 years ...	4 „
3 and under 4 years ...	2 „
4 and under 5 years ...	2 „
All over 5 years ...	3 „

Every known case of Measles is visited by one of the health visitors as soon as information is received, and arrangements are made for the attendance of a district nurse in cases of serious illness and where the nursing arrangements are imperfect. In all other cases information is given as to the necessity of keeping the child in bed in a room which is well ventilated, and at the same time attending to various nursing matters.

### SCARLET FEVER.

From the appended table it will be seen that the number of cases of scarlet fever (1,521) and severity of attack (death rate .01 per 1,000) remained at a low level.

	Number of Cases.	Case-rate per 1,000.	Number of Deaths.	Death-rate per 1,000.	Case mortality per cent.
1901-05 (Average)	4,038	5.21	172	.22	4.26
1906-10 ...	3,956	4.83	116	.14	2.93
1911-15 ...	5,456	6.29	125	.14	2.29
1916-20 ...	2,472	2.73	41	.04	1.66
1921-25 ...	2,652	2.84	32	.03	1.21
1919 ...	2,821	3.05	45	.05	1.60
1920 ...	5,563	6.13	110	.12	1.98
1921 ...	3,320	3.62	40	.04	1.20
1922 ...	3,250	3.51	36	.04	1.11
1923 ...	2,619	2.81	39	.04	1.49
1924 ...	2,219	2.31	23	.02	1.04
1925 ...	1,852	1.95	22	.02	1.19
1926 ...	1,709	1.78	8	.01	0.47
1927 ...	1,510	1.56	8	.01	0.53
1928 ...	1,521	1.56	5	.01	0.33

The incidence was as follows :—

Central Wards ...	...	...	1.14 cases per 1,000 of population.
Middle Ring ...	...	...	1.58       "       "
Outer Ring ...	...	...	1.70       "       "

The gross total notifications of persons suffering from scarlet fever was 1,568. Of these 990 were admitted to hospital, and 578 were treated at home. A few cases were also treated in the City Hospitals on behalf of other Sanitary Authorities.

Among the Birmingham cases, 85 which were admitted to hospital and 4 which were nursed at home proved not to be scarlet fever. Also, a revised diagnosis of scarlet fever was made in respect of 42 patients sent into hospital as diphtheria.

These revisions leave a total of 1,521 actual cases of scarlet fever, 947 of whom were treated in hospital, and 574 in their homes.

### RETURN CASES.

During the year 41 Return Cases were reported following the discharge from hospital or release from home isolation of 34 infecting cases.

The details are as follows :—

	No. of infecting cases discharged.	No. of infecting cases, each followed by—			Total No. of Return cases.
		One Return Case	Two Return cases	Three Return cases	
Hospital cases.	27	22	4	1	33
Home. cases.	7	6	1	—	8

Dr. E. H. R. Harries' report on Scarlet Fever cases in the City Hospital will be found on page 85.

### WHOOPIING COUGH.

There were 163 deaths due to whooping cough in 1928.

The cases and deaths in previous years are shewn in the next table.

		Number of Cases.	Number of Deaths.	Death-rate per 1,000.
1901-5 (Average)	?		316	.41
1906-10	...	?	294	.36
1911-15	...	2,611* (1912-1915)	213	.25
1916-20	...	3,592*	206	.23
1921-25	...	4,463*	180	.19
1919	...	1,218*	60	.06
1920	...	3,782*	182	.20
1921	...	2,449*	93	.10
1922	...	7,175*	356	.38
1923	...	1,772*	44	.05
1924	...	4,783*	185	.19
1925	...	6,138*	222	.23
1926	...	4,895*	128	.13
1927	...	2,496*	69	.07
1928	...	6,463*	163	.17

\*Partial notification through schools.

The ages at death were as follows:—

						1924.	1925.	1926.	1927.	1928.
Under 1 year	...	...	...	...	...	78	94	61	31	75
Between 1 and 2 years	...	...	...	...	...	65	83	42	25	54
„ 2 „ 3 „	...	...	...	...	...	23	23	9	6	17
„ 3 „ 4 „	...	...	...	...	...	10	9	6	4	9
„ 4 „ 5 „	...	...	...	...	...	6	9	2	1	4
Over 5 years	...	...	...	...	...	3	4	8	2	4
Totals	...	...	...	...	...	185	222	128	69	163

From the above it will be seen that 129 of the 163 deaths occurred among babies under two years of age.

The following death-rates indicate that, as in previous years, the cases are more fatal in the poorer areas:—

Central Wards	...	...	...	...	...	.35 per 1,000
Middle Ring	...	...	...	...	...	.14 „
Outer Ring	...	...	...	...	...	.08 „

Every case reported is visited with a view to supplying a district nurse at the expense of the Public Health Department, if necessary, and giving advice in regard to what is needful to prevent complications.

### DIPHTHERIA.

From the subjoined table it will be seen that the incidence of diphtheria shewed very little departure from the average of the previous ten years. Both during 1927 and 1928, however, an appreciable decrease in the number of deaths from this disease is noticeable. As in previous years the prevalence was highest in the Centre of the City, becoming gradually less from the Centre outwards.

According to the Registrar General's report for 1927 the Midland County Boroughs shewed the highest case rate for diphtheria when compared with other corresponding groups of towns in the country; and although the figure for Birmingham compares favourably with that of London and certain Midland towns, yet it is a fact that the incidence in the City remains at a high level.

It is obvious from a review of the cases that bad housing conditions, overcrowding, and insanitation play a large part in the propagation of diphtheria. Where, owing to lack of accommodation, several children must sleep huddled together in a single bedroom, the risk of an infected child conveying the disease to others is considerable. It is of not infrequent occurrence to discover two or three children, and occasionally more, all suffering from diphtheria at one and the same time and occupying the same room.

The percentage of diphtheria "carriers" in Birmingham is bound to be high. These individuals, although themselves not suffering from the disease, are nevertheless harbouring the virulent germs in nose or throat: they constitute a perpetual menace to others who are susceptible.

A disturbing feature about diphtheria is the insidious nature of its onset. A feeling of weakness and lassitude is frequently the first symptom, the throat affection not causing pain or inconvenience until later. Hence, very often, a doctor is called in only after the diphtheria toxins have wrought much damage to nervous tissues, at a stage when the prospect of treatment with antitoxin has become less hopeful. Diphtheria antitoxin if given during the first day of the disease makes the prospect of complete recovery almost a certainty, but with each hour that it is withheld the danger of complications becomes increasingly imminent. Ignorance of parents concerning the early symptoms of diphtheria is largely responsible for the high mortality rate. This is the more regrettable in view of the established fact that the condition can now be relegated to that class of diseases such as smallpox which is definitely preventable.

During the year circular letters have been sent to all medical practitioners within the City drawing their attention to the particular incidence of the disease in certain areas and to the advisability of administration of antitoxin immediately even in the doubtful cases and before receiving the result of a swab.

Elsewhere (page 58) reference is made to the work on diphtheria immunisation which is being carried out in Birmingham. This preventive measure is certainly tackling the disease at the right end; and in the course of time, when the practice has become more general, it will be evident that the work will have effected a considerable saving both in life and money.

#### DIPHTHERIA CASES AND DEATHS.

	Cases Notified.	Case-rate per 1,000 of Population.	Deaths.	Death-rate per 1,000.	Case Mortality per cent.
1901-05 (Average)	991	1.28	159	.20	16.0
1906-10	1,210	1.48	149	.18	12.3
1911-15	1,125	1.30	155	.18	13.8
1916-20	1,065	1.19	143	.16	13.4
1921-25	1,651	1.76	109	.12	6.6
1919	970	1.05	126	.14	13.0
1920	1,755	1.93	201	.22	11.5
1921	1,652	1.80	120	.13	7.2
1922	1,285	1.39	89	.10	6.9
1923	1,537	1.65	139	.15	9.0
1924	1,887	1.97	100	.10	5.3
1925	1,896	2.00	95	.10	5.0
1926	1,804	1.88	116	.12	6.4
1927	1,543	1.60	61	.06	4.0
1928	1,552	1.59	70	.07	4.5

The distribution over the City is indicated in the table below. From this it will be seen that the cases were more numerous in the central and middle ring of wards than in the outer ring.

					Diphtheria.		}	Average 1.73
Ward.					Case-rates per 1,000			
Central Wards	...	{	St. Paul's	...	...	2.43	}	
			St. Mary's	...	...	1.54		
			Duddeston and Nechells	...	...	0.76		
			St. Bartholomew's	...	...	2.63		
			St. Martin's and Deritend	...	...	1.53		
			Market Hall	...	...	0.95		
			Ladywood	...	...	2.27		

Middle Ring	...	{	Lozells	...	...	...	1.48	}	Average 1.48
			Aston	...	...	...	1.57		
			Washwood Heath	...	...	...	1.26		
			Saltley	...	...	...	1.57		
			Small Heath	...	...	...	1.06		
			Sparkbrook	...	...	...	1.74		
			Balsall Heath	...	...	...	0.78		
			Edgbaston	...	...	...	0.89		
			Rotton Park	...	...	...	1.46		
			All Saints'	...	...	...	2.99		
Outer Ring	...	{	Soho	...	...	...	1.93	}	Average 1.42
			Sandwell	...	...	...	4.02		
			Handsworth	...	...	...	1.32		
			Perry Barr	...	...	...	—		
			Erdington North	...	...	...	1.29		
			Erdington South	...	...	...	1.30		
			Yardley	...	...	...	1.49		
			Acocks Green	...	...	...	1.88		
			Sparkhill	...	...	...	1.16		
			Moseley and Kings Heath	...	...	...	0.60		
			Selly Oak	...	...	...	0.83		
			King's Norton	...	...	...	1.53		
			Northfield	...	...	...	1.33		
			Harborne	...	...	...	1.22		
			Whole City	...	...	...	1.59		

## AGE INCIDENCE.

Ages.	Cases Notified.	Deaths Registered.	Case Mortality per cent.
Under 1 year	16	2	12
Between 1 and 2 years	57	4	7
Between 2 and 3 years	82	6	7
Between 3 and 4 years	89	6	7
Between 4 and 5 years	102	8	8
Between 5 and 10 years	640	32	5
Between 10 and 15 years	257	6	2
Between 15 and 20 years	110	1	1
20 years and over	199	5	3
Total	1,552	70	5

During the year 2,122 cases were notified as suffering from Diphtheria and of these, 1,870 were removed to hospital, and 252 kept at home. Of the Birmingham cases removed to hospital, 565 were found to be not true Diphtheria, while 4 cases admitted as Scarlet Fever were revised to Diphtheria. Among those kept at home, 9 were afterwards found to be not Diphtheria.

The total number of actual cases for the year was therefore 1,552, of whom 1,309 were treated in hospital, and 243 at home.

In addition to these a small number of cases were treated in the City Hospitals on behalf of other Authorities.

Dr. Harries' report on the work of the City Hospitals will be found on page 85.

## DIPHTHERIA ANTI-TOXIN.

Diphtheria anti-toxin is distributed free of charge to doctors for the treatment of Birmingham patients from the following places:—

The Bacteriological Laboratory, Lodge Road; The Public Health Department, Congreve Street; and Police Stations at Bristol Road, Northfield; High Street, Selly Oak; Pershore Road, Stinchley; High Street, King's Heath; Stratford Road, Sparkhill; Yardley Road, Acocks Green; Coventry Road, Hall Mills; Victoria Road, Stechford; Washwood Heath; Wilton Road, Erdington; Victoria Road, Aston; Thornhill Road, Handsworth; Holyhead Road, Handsworth.

## IMMUNIZATION OF CHILDREN AGAINST DIPHTHERIA.

In the annual report for 1927 a report by Dr. E. H. R. Harries and Dr. D. K. Jeyes indicated the value and scope of this preventive work against Diphtheria. Immunization by toxoid anti-toxin mixture is now well past the experimental stage, it has withstood the test of time, and its efficacy as a reliable and lasting prophylactic has been repeatedly proved by experience extended over a number of years, not only in Birmingham, but throughout this and other countries.

Certain alterations in the field of activity have been made during the year. Previously the clinics were held chiefly at the Council House and at the Little Bromwich Hospital, and parents in different parts of the City were visited at their homes by infant visitors or inspectors, and invited to attend. The arrangement was successful in securing a definite foundation for the work in the City and bringing to the notice of the public that this preventive measure was available to them.

As the number of attendances increased it became obvious that many parents living away from the centre of the City were loth to bring their children to the Public Health Department on account of the time taken up and expense incurred in travelling. Where there were several children in one family, and at least three visits had to be paid, tram-fares soon reached a prohibitive amount. Also it was considered that the clinics would serve a better purpose if their work were directed more particularly to parts of the town which shewed a higher incidence of diphtheria. After consultation with the School Medical Officer (Dr. G. A. Auden) it was decided that for the convenience of the parent and child and expeditious carrying out of testing and immunization, the schools in these areas were most suited for clinic work.

The All Saints and Winson Green districts shew a high degree both in incidence and virulence of diphtheria, and accordingly the schools in this part of the town have received special attention. The sub-joined table sets out details of testing and immunization performed at the schools by Dr. Jeyes during the year.

Not the least difficult part of this work consists in the persuasion of parents of the necessity for them to have their children protected. The majority of fathers and mothers are obsessed with the idea that this trifling operation is analogous to vaccination, and subject therefore to a similar degree of inconvenience. The sympathy and help of school masters and school mistresses have been invaluable in surmounting parental objections.

As in previous years only children over 10 years of age have been given the Schick test before inoculation. It is known that the large majority of children under 10 years are susceptible to diphtheria, and hence the test is of little importance among this group when dealing with a large number of children in a limited period of time.

From statistical evidence it appears in Birmingham that the age period at which the greatest incidence and heaviest mortality from diphtheria occurs is that between 6 and 8 years. Obviously, therefore, the most satisfactory results from immunization will be obtained from children immunized before age six. With this object in view, sessions for pre-school children have been established at a number of the Maternity and Child Welfare Centres. These sessions are in addition to clinics already provided at the Public Health Department, the Council House. It is hoped that from these foci at Child Welfare Centres and schools the spread of knowledge on diphtheria immunization will take place, and protection accordingly be obtained.

## IMMUNIZATION (DIPHTHERIA) IN SCHOOLS, 1928.

Date.	School.			Children on Register.	Immune. (Sch. Test Neg).	Immunized (T. A. T. given).	Percentage of School treated.
Sept. 1928	All Saints' Senior	...	...	269	43	73	43
Sept. 1928	All Saints' Infants	...	...	150	—	50	33
Feb. and							
Sept. 1928	Benson Road Senior	...	...	521	132*	146	53
May 1928	Benson Road Infants	...	...	305	4	124	42
June 1928	Camden Street Senior	...	...	510	168	91	50
May 1928	Foundry Road Senior	...	...	511	82	149	45
June 1928	Foundry Road Infants	...	...	296	6	93	33
Oct. 1928	Handsworth New Rd. Infants			196	3	115	60
Nov. 1928	Icknield Street Senior	...	...	530	103	118	41
Nov. 1928	Icknield Street Infants	...	...	194	1	77	40
May 1928	Norton Street Girls	...	...	223	57	61	52
May 1928	Norton Street Boys	...	...	245	65	106	69
June 1928	Norton Street Infants	...	...	252	—	142	56
Dec. 1928	Nursery School, Summer Lane			93	—	42	45
				4295	664	1387	48

\*In a further group of 42 children Schick-tested, the result was positive but parents refused treatment.

172 confirmatory Schick-tests were performed six months after immunisation upon children at St. Patrick's School. Of these, 161 were Schick-negative, and 11 were Schick-positive.

RETURN OF NUMBER OF SCHICK TESTS AND IMMUNIZATIONS AGAINST DIPHTHERIA, UP TO THE END OF 1928, FROM COMMENCEMENT OF WORK.

				Schick tested.	Schick positive.	Immunised (Full course)
Infant Welfare Centre	...	...	...	—	—	2119
Day Schools	...	...	...	1310	640	1678
				(Over 10 only).		
Residential Institutions	}	...	...	3139	1213	1213
Residential Schools		...	...			
Hospitals (1) Staff	...	...	...	764	221	216
(2) Patients	...	...	...	Approx. 5050	Approx. 2150	Approx. 400
				<u>10263</u>	<u>4224</u>	<u>5626</u>

INFLUENZA.

The position of this disease as compared with former years is shown in the tables following :

				Deaths.	Rate per 1,000.
1901-05 (Average)	...	...	...	102	.13
1906-10	„	...	...	150	.18
1911-15	„	...	...	115	.13
1916-20	„	...	...	780	.88
1921-25	„	...	...	317	.34
1919	...	...	...	1062	1.15
1920	...	...	...	421	.46
1921	...	...	...	134	.15
1922	...	...	...	442	.48
1923	...	...	...	264	.28
1924	...	...	...	375	.39
1925	...	...	...	370	.39
1926	...	...	...	260	.27
1927	...	...	...	399	.41
1928	...	...	...	130	.13

In the next table the ages at death are set out for 1928 and the four preceding years.

The ages at death were as follows :—

Ages.	1924	1925.	1926.	1927.	1928.	Total.
0—5	22	19	13	26	11	91
5—10	4	5	0	4	2	15
10—15	4	5	2	5	2	18
15—20	9	8	1	10	4	32
20—25	5	11	8	10	3	37
25—35	30	18	26	29	10	113
35—45	47	41	40	55	21	204
45—55	64	60	40	47	21	232
55—65	64	79	50	71	25	289
65—75	70	78	46	83	17	294
75—85	44	38	25	50	12	169
85 upwards	12	8	9	9	2	40
Totals	<u>375</u>	<u>370</u>	<u>260</u>	<u>399</u>	<u>130</u>	<u>1534</u>

The severe epidemic of Influenza sweeping through the whole country and in which Birmingham, with all other large centres of population, suffered severely in the Spring of 1929, will be dealt with in the next Annual Report.

## DYSENTERY.

Sporadic outbreaks of bacillary dysentery have occurred in the City during the year, giving a total number of 34 persons affected. In 15 cases an official notification was received. This increase has coincided with a similar rise in the number of notifications which has taken place in various parts of the country at about the same time.

The severity of attack and hence the fatality-rate has been distinctly mild in Birmingham. In this respect we can count ourselves more fortunate than other areas where a more virulent type of infection has been prevalent. In a number of cases reported from these districts it is evident that the dysentery bacillus has acquired certain highly toxic and fatal properties which are more usually associated with the food poisoning group of bacteria.

The original source of infection of these cases is usually a healthy carrier of the disease. Such people may present no symptoms and so arouse no suspicion; they may continue as carriers continuously or intermittently for a considerable number of years. Should they be careless in their habits, or engaged in the handling of food, the risk of infection being conveyed to others is very great.

There can be little doubt that the number of dysentery carriers in this country has been considerably increased as the result of the war when large numbers of troops became infected through the medium of contaminated water in Mesopotamia and other places where the disease was endemic.

Bacteriological reports on blood and stools shewed that some strain of the Flexner group of Dysentery Bacilli was the organism responsible for the majority of infections. Diagnosis in other cases was made upon the clinical evidence and knowledge of the patient having been in contact with a known case.

The following table sets out a series of cases which occurred at one of the institutions in the City. The initial patient was considered to be "A.M.," and the remaining cases re-infections from him. "A. M." became ill five or six days before admission to hospital. He was then suffering from diarrhoea with mucus and blood in the stools and feverishness. On examination at the hospital it was found that he had developed nephritis with extensive œdema of the lower limbs.

The other 9 children who were in-patients of the same ward became infected in the course of a few days. The symptomatology was similar in all the cases, namely diarrhoea, a jelly-like mucoid stool, melæna, and moderate pyrexia. Recovery took place in every patient in from 10—14 days after the onset.

Name.	Age.	Date of onset.	Blood Agglutination.	Stools.		
				$\frac{1}{25}$	$\frac{1}{50}$	$\frac{1}{125}$
A. M.	10	7.4.28	Flex. Y.	++	++	
			Flex. V.	+	+	
K. W.	5	14.4.28	Flex. Y.	+	+	
P. T.	6	17.4.28	Flex. Y.	+	+	
I. S.	11	17.4.28	Flex. V.	+	+	
			Flex. Y.	+	+	
			Flex. Z.	+		
W. S.	9	17.4.28	Flex. Y.	+		
D. B.		19.4.28	Flex. V.	+	+	+
			Flex. Y.	+		
K. T.	6	22.4.28	Flex. V.	+	+	
			Flex. Y.	++	+	
F. M.		22.4.28	Flex. Y.	+	+	
P. P.	2	?	Flex. V.	++	++	
J. B.	8	22.4.28	Flex. X.	++		
			Flex. Y.	++	++	
			Flex. Z.	+		

In November another small outbreak of dysentery occurred in Guildford Street, Lozells. Three houses in close proximity to each other were implicated; two of these were "through" houses let in lodgings and had a common yard, the other was occupied by only one family. Five families were infected involving 16 persons.

The infecting organism was the bacillus dysentery Flexner Y. The origin of the infection was considered to be an ex-soldier living in one of the houses let in lodgings who stated that he had suffered from dysentery while in France during the war. His four young children were the first to become ill, although he himself and his wife presented no symptoms. During the ensuing few days the condition was spread to other members of the houses let in lodgings and to the family in the private house. Owing to the mild ambulatory type of the disease a medical man was not called in until several persons had been affected. One death occurred in a child of two years. She was one of the family of eight living in the private house and had been in a debilitated condition previous to infection. Six other members of this family were also infected but in each the disease pursued a mild course.

In view of the serious overcrowding of these houses let in lodgings, the absence of separate approaches for different families, the lack of light, ventilation, and the inaccessibility of water supply it is not surprising that an intestinal infection such as dysentery can spread with such alarming rapidity. The new bye laws as to houses let in lodgings should do much to improve the unsatisfactory conditions of these premises, and risk of spread of disease will be correspondingly less.

Eight other sporadic cases were notified from various parts of the City. Three of these were ex-soldiers; they were suffering from recrudescences of the disease having contracted the infection originally in India, Mesopotamia and Italy respectively. They were not confirmed bacteriologically. All the eight cases were definitely mild in type.

As already indicated, the Flexner group of Dysentery Bacilli appears to vary considerably in virulence. Observation of bacteriological reports upon stools from patients who present no symptoms nor signs of the disease shew that an appreciable number of people of all ages are unwittingly harbouring this class of bacteria. Certain types of the bacillus are unquestionably harmless but at the other extreme the virulent toxic type is in evidence. It is probable that a mutation in type takes place between these two extremes, that the non-pathogenic acquires pathogenic properties, and vice-versa, and that intermediate degrees of pathogenicity occur. In this way can be explained the variation in severity of attack from the "carrier" only—frequently an ill-nourished child—to the fulminating and fatal type of the disease.

#### FOOD POISONING.

In September five cases of food poisoning, three of which proved fatal, took place in the centre of the City (St. Mary's and Ladywood Wards). Bacteriological examination showed that infection in one family was due to *Bacillus Aertrycke* and that the vehicle of infection was "a-la-mode" beef. In the other no definite organism was isolated but it was considered that either "pig scratchings" or "black pudding" were probably the media of infection.

The *B. Aertrycke* cases occurred in a family of five persons. The father and son consumed at lunch portions of "a-la-mode" beef which had been purchased the day previously at a shop near their home. They were the only members of the family to partake of the beef. The father worked until eight o'clock that evening after which he returned home complaining of abdominal pain. He was unable to resume work the following day owing to continuance of the pain, vomiting and diarrhoea. Finally, as the condition became so grave he was removed to Dudley Road Hospital, where he died after two days (five days after onset). The son's attack was much less acute, he did not become ill until 24 hours after eating the beef and his symptoms were only those of headache, lassitude and giddiness. Subsequent weakness kept him away from work for several days.

Bacteriological cultures taken at the post-mortem examination on the father revealed the presence in intestines, spleen, liver and gall bladder of the *Bacillus Aertrycke*.

The second outbreak of food poisoning affected three poorly-nourished young children in a family of eight persons. Information as to possible infection did not reach the Health Department until two deaths had occurred. This was not surprising in view of the continued illnesses and hospital history of the children. The youngest child of the family, five months old, had been admitted to Dudley Road Hospital five weeks prior to the outbreak. This baby died as the result of marasmus seven days after the death (from food poisoning) of two other children in the same house.

The first food poisoning case, R. D., age 2 years, had been an in-patient at Dudley Road Hospital three times during 1928. On the 6th September, when at home, he became suddenly ill with vomiting and diarrhoea. On the 9th September the condition was much worse and he had become unconscious. He was removed to the Queen's Hospital where death took place on the 20th September.

The second case, V. D., aged 3 years, became suddenly ill on the 16th September. The symptoms were vomiting, diarrhoea and rapid loss of consciousness. She was admitted to the Children's Hospital two days later and died there on the 21st September.

The third case, L. D., aged 4 years, fell a victim to the condition on the 29th September. The symptomatology was the same as that of his brother and sister. In view of previous fatalities the child was taken immediately to the Queen's Hospital where he was seriously ill for several days but finally recovered.

Bacteriological examinations were made at the Hospitals on the stools of one of the children who died and of the survivor but no organism of the food poisoning group was identified.

An exhaustive enquiry was made into articles of food which had been eaten by the affected children prior to becoming ill. It was ascertained that all the victims were in the habit of obtaining pennies from their father wherewith to purchase at a shop nearby "pigs-pudding" and "scratchings." The latter consist of the "leaves" or remaining tissues from the pig's omentum after extraction of the lard. The "leaves" are pressed and the resulting product is a chewing-gum-like mass which is eaten without further cooking. Apart from the doubt as to the nutritive value of these so-called foods they unquestionably form an excellent medium for growth of bacteria; and lack of cleanliness such as is so frequently witnessed in the average huckster's shop can render these articles highly dangerous for human consumption. Samples of "pigs-pudding" and "scratchings" obtained from the shop patronised by these patients were submitted for bacteriological examination. While no conclusive evidence was obtained indicating that these commodities were responsible for conveying the infection to the children affected yet it is noteworthy that from two samples of scratchings non-lactose-fermenting bacteria were isolated.

At the houses of both cases of food poisoning, thorough disinfection of bed-clothing and premises was carried out, and the shops which had supplied articles of food to the respective families were inspected by members of the staff of the Veterinary Department.

A dangerous feature associated with food contaminated by the food poisoning bacteria is the fact that the article frequently appears quite wholesome and in no way gives rise to suspicion. Thus, in the case of the infected "a-la-mode" beef, the son who recovered, and his mother, were both emphatic that the beef looked fresh, had no objectionable odour nor unpleasant taste.

#### ACUTE ANTERIOR POLIOMYELITIS.

There were 8 cases notified as anterior poliomyelitis; revision of diagnosis was made in 2 of these giving a net number of 6 cases. One of the latter referred to a man of 33 years of age who had suffered from anterior poliomyelitis in infancy. A paralysis producing kyphosis had developed and this in turn led to chronic bronchitis. Information as to his death was received from the Registrar's returns and consequently he is numbered among the cases for this year; his was the only death that occurred.

Of the remaining 5 patients, only one, aged 2 years, made a complete recovery. Some form of paralysis developed in each of the others. These four complicated cases were visited at periods ranging from 6 to 12 months after the onset and their condition was found to be as follows:—

P. T., aged 6 years. Still has partial paralysis of muscles of left arm and leg. He is receiving massage and breathing exercises daily at the Children's Hospital.

H. N., aged 2 years. Had partial paralysis of muscles of both legs and right arm. He is wearing irons on both legs and is attending the Orthopædic Hospital three times per week.

A. B., aged 2 years. Has partial paralysis of muscles of right arm. The condition is improving, but she is still attending as an out-patient at the Children's Hospital.

J. C., aged 3 years. Has partial paralysis of muscles of both lower limbs. She is improving but is compelled to wear irons and is attending the Children's Hospital three times per week.

#### POLIOMYELITIS.

Year.	Cases notified	Died	Complete recovery.	Some Paralysis.
1917	11	2	6	3
1918	4	—	2	2
1919	14	1	6	7
1920	1	—	—	—
1921	11	4	1	6
1922	6	—	1	5
1923	33	3	1	29
1924	39	5	5	29
1925	11	3	5	3
1926	38	3	3	32
1927	15	1	6	8*
1928	6	1	1	4

\*One died later of intercurrent disease.

## POLIO-ENCEPHALITIS.

One case of polio-encephalitis was notified during the year. The case was a boy aged two years. No paralysis occurred and complete recovery took place.

## ENCEPHALITIS LETHARGICA.

A gradual reduction in the notifications of encephalitis lethargica has taken place since 1924, the peak year, when 282 cases were notified. While, however, the incidence is decreasing (41 cases during 1928) it will be seen that the fatality rate for 1928 was more than three times as high as the figure for 1924. The cases were scattered widely over the town, no particular district being specially affected.

## ENCEPHALITIS LETHARGICA.

Year.	Cases.	Deaths.	Fatality per cent.
1919	11	5	45.5
1920	18	7	38.9
1921	25	8	32.0
1922	12	4	33.3
1923	29	12	41.4
1924	282	44	15.6
1925	92	32	34.8
1926	89	36	40.4
1927	53	32	60.4
1928	41	22	53.7

The following table shows the sex, age groups and number of deaths of the 41 cases in which the diagnosis of encephalitis lethargica has been confirmed.

Age group.	No. of Cases.		No. of Deaths.		Case mortality. per cent.
	Male.	Female.	Male.	Female.	
1—5 years	3	1	2	1	75
5—15 years	2	1	2	1	100
15—25 years	6	2	1	2	33
25—45 years	2	8	2	2	36
45 and over	10	6	6	3	64
	23	18	13	9	54%

As in previous years the sexes appear to be equally susceptible to the disease, and the death-rate is highest at the extremes of life. 16 of the 19 survivors were visited at periods ranging from 6—9 months after the original attack. The subjoined classification shows the degree of recovery at the time of visit.

Complete recovery	4
At work (or school) but still showing occasional nervous after-effects	6
Complete incapacity and having definite mental impairment	6
Removed from City (no trace of whereabouts)	3

It will be seen that more than half of the patients attacked by this terrible malady succumbed, and that of the 19 survivors at least 6 have been left with a permanent legacy of mental and physical incapacity. It is a moot point which of these two groups constitutes the greater tragedy; certain it is that if the case mortality had been less than it actually was the ranks of mental defectives, relics of the ravages of recent years, would have become even more swollen.

The problem of dealing with post-encephalitis cases still remains one of urgency; these unfortunate people are an anxiety both to themselves and to those on whom they become dependent. When able to do so they drift as in-patients or out-patients from one hospital to another leading a life of continual misery.

## CEREBRO-SPINAL FEVER.

Sixteen notifications of cases of cerebro-spinal fever were received. Revision of diagnosis was made in respect of 4 of this number. Of the remaining 12 "true" cases, 9 died, giving a case-mortality of 75%.

## CEREBRO SPINAL FEVER.

Year.					Cases notified.	Deaths.	Fatality per cent.
1919	...	...	...	...	14	9	64
1920	...	...	...	...	25	18	72
1921	...	...	...	...	9	7	78
1922	...	...	...	...	18	16	89
1923	...	...	...	...	4	2	50
1924	...	...	...	...	11	8	73
1925	...	...	...	...	7	6	86
1926	...	...	...	...	10	9	90
1927	...	...	...	...	12	10	83
1928	...	...	...	...	12	9	75

Four cases occurred among infants under one year of age, and all these infants died. The age groups of the 8 remaining patients shewed 3 under 5 years of age of whom 1 died, 3 between 5 and 15 years all of whom died, and 2 in the thirty-five to forty-five period of whom 1 died.

With the exception of one case in Handsworth all the patients were living in poorer class property situated in the central and middle ring of wards, and all except 2 received hospital treatment. The three survivors when visited four months after the onset of the condition had completely recovered.

## TUBERCULOSIS SCHEME ADMINISTRATION.

(DR. MATTHEW BURN, Assistant Medical Officer of Health).

The Council have a Tuberculosis Dispensary at No. 44a, Broad Street, near the centre of the City, and serving the whole City. By reason of necessary extension of the premises of the Water Department, to whom the dispensary building belongs, it has become imperative to seek alternative accommodation; and this is at present under consideration.

The Residential Institutions, wholly maintained by the City Council, are four in number, namely:—

- (1) The Yardley Road Sanatorium; for observation, early and advanced cases, provides 325 beds.
- (2) The West Heath Sanatorium; where advanced cases are treated, provides 116 beds.
- (3) The Salterley Grange Sanatorium, near Cheltenham; where early cases are treated, provides 68 beds.
- (4) The Romsley Hill Sanatorium, Halesowen; where all stages of diseases are admitted, provides 120 beds, of which 88 are reserved for Birmingham patients.

In addition there is the Woodlands and Forelands (Cripples' Union) at which individual patients are maintained by the City Council, utilising on an average some 100 beds for cases of surgical tuberculosis.

In the working of the tuberculosis scheme active co-operation takes place with the various hospitals in the City and the medical profession, and especially the insurance practitioners. The arrangements for securing co-operation have worked well. Satisfactory arrangements have been made to co-ordinate the work of the tuberculosis scheme with that of the school medical service and all cases coming under the notice of their service suspected of suffering from tuberculosis are referred to the Tuberculosis Dispensary.

Similar arrangements also exist for securing co-operation between the Maternity and Child Welfare Scheme and the Tuberculosis Scheme.

Total number of cases on Tuberculosis Register at Dec. 31st, 1928	...	...	...	10,049
No. of patients transferred from other areas during 1928	...	...	...	27
No. of patients transferred to other areas	...	...	...	85

## TUBERCULOSIS (ALL FORMS).

The number of deaths from all forms of tuberculosis in 1928 was 965, giving a mortality rate of 0.99 per 1,000.

## RECORD OF DEATHS IN PREVIOUS YEARS.

	1918	1919	1920	1921	1922	1923	1924	1925	1926	1927	1928
Deaths ...	1,385	1,188	1,001	1,035	1,049	1,006	1,055	1,083	1,024	1,017	965

## MORTALITY RATE PER 1,000 IN PREVIOUS YEARS.

	1918	1919	1920	1921	1922	1923	1924	1925	1926	1927	1928
Birmingham ...	1.60	1.28	1.10	1.13	1.13	1.08	1.10	1.14	1.06	1.05	0.99
England and Wales ...	1.67	1.28	1.13	1.13	1.12	1.06	1.06	1.04	0.96	0.97	—

AVERAGE MORTALITY RATE PER 1,000 FROM TUBERCULOSIS IN BIRMINGHAM  
FOR PERIODS OF 5 YEARS FROM 1901.

Periods.	1901-5	1906-10	1911-5	1916-20	1921-5	1926	1927	1928
Average mortality rate per 1,000 ...	1.78	1.51	1.51	1.40	1.12	1.06	1.05	0.99

## NEW CASES AND MORTALITY DURING 1928.

Age periods.	New Cases.				Deaths.			
	Pulmonary.		Non-pulmonary.		Pulmonary.		Non-pulmonary.	
	M.	F.	M.	F.	M.	F.	M.	F.
Under 1 year ...	2	—	5	5	4	1	8	6
1—4 years ...	9	9	28	23	4	3	18	9
5—9 „ ...	28	39	43	22	3	—	9	8
10—14 „ ...	20	35	12	12	4	3	3	2
15—19 „ ...	57	73	15	16	21	42	5	4
20—24 „ ...	97	92	11	11	45	49	8	6
25—34 „ ...	144	151	9	9	85	91	7	3
35—44 „ ...	145	104	4	6	127	65	4	3
45—54 „ ...	172	61	2	5	135	47	7	6
55—64 „ ...	68	27	4	2	63	22	3	4
65 and over ...	19	9	1	—	19	7	2	—
TOTALS ...	761	600	134	111	510	330	74	51

Of the deaths occurring from all forms of tuberculosis in 1928, 142 or 15 per cent. were not notified before death; about one-third of the latter were notified after death.

In each case a letter was sent to the doctor responsible or other enquiry was made into the circumstances of non-notification. In no case was it necessary to take legal action regarding neglect or refusal to notify.

Notifications received after death—pulmonary cases 21, and other forms 26. These are included in the figures given below, which show the notifications received during the year and also the number of deaths of persons for whom no notification was received prior to death.

	New Cases notified in 1928.	Not notified before death.
Pulmonary Tuberculosis ... ..	1,361	62
Tubercular Meningitis ... ..	33	41
Tubercle of the Abdomen ... ..	44	10
Tubercle of the Spinal Column ... ..	32	1
Tubercle of the Joints ... ..	32	—
Disseminated Tuberculosis ... ..	15	20
Tubercle of the Glands and other forms	89	8
	<u>1,606</u>	<u>142</u>

As regards the distribution of tuberculosis, we find that the average case-rate per 1,000 in 1928 was :—

	Pulmonary.	Non-Pulmonary.	Total.
Central Wards ... ..	2.07	.33	2.40
Middle Ring ... ..	1.27	.22	1.49
Outer Ring ... ..	0.98	.19	1.17

Thus both in tuberculosis of the lungs and in tuberculosis of other parts of the body, the incidence of infection is heaviest in the crowded central wards of the City.

(a) PULMONARY TUBERCULOSIS.

Deaths in 1928 ... ..	840
Mortality rate per 1,000 ... ..	0.86

RECORD OF PREVIOUS YEARS.

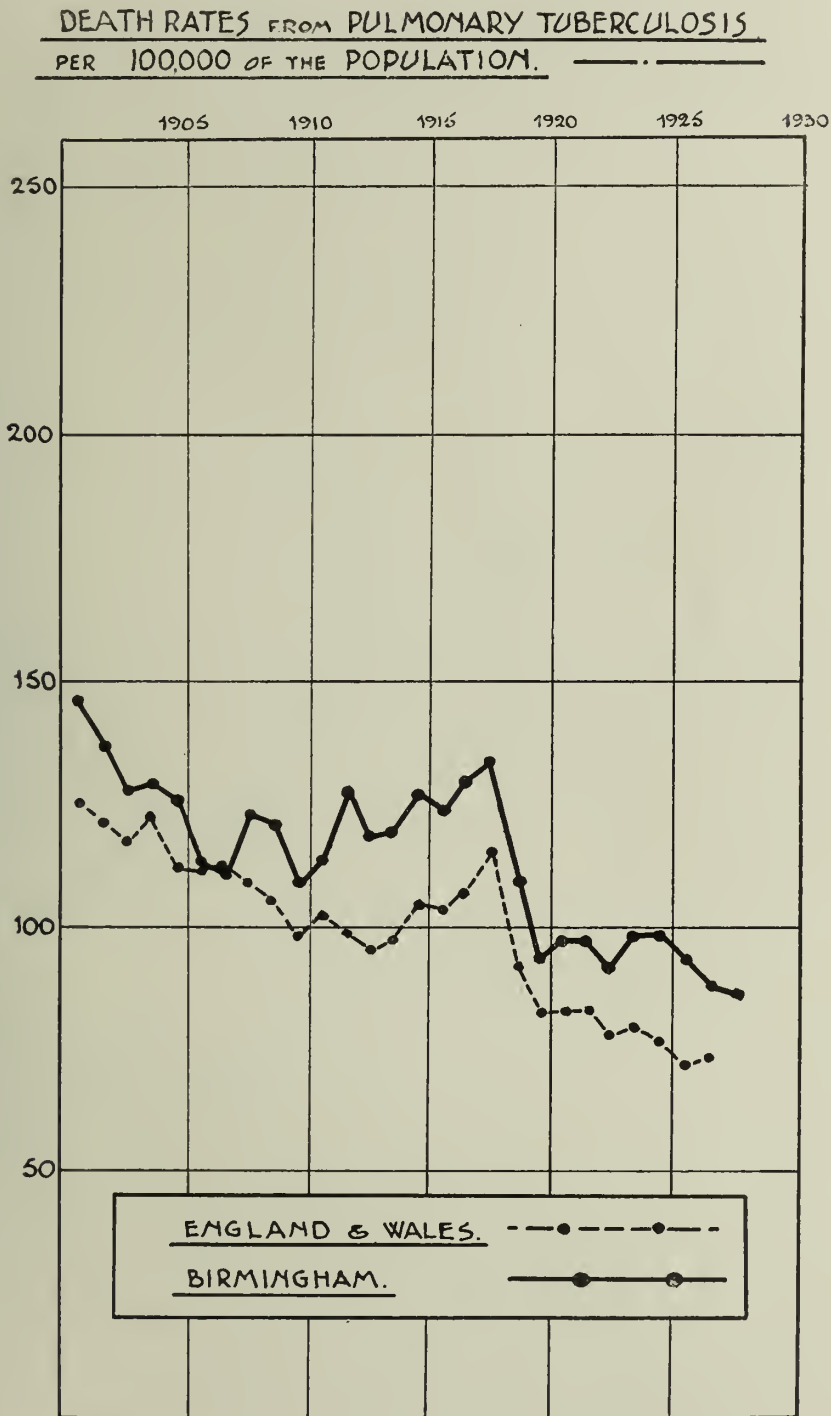
	1918	1919	1920	1921	1922	1923	1924	1925	1926	1927	1928
Deaths ...	1,171	1,019	843	890	899	860	934	930	905	857	840

MORTALITY RATE PER 1,000 IN PREVIOUS YEARS.

	1918	1919	1920	1921	1922	1923	1924	1925	1926	1927	1928
Birmingham ...	1.35	1.10	.93	.97	.97	.92	.97	.98	.94	.89	.86
England and Wales ...	1.30	1.00	.87	.88	.89	.84	.84	.83	.77	.79	—

It will be noted that the mortality from Pulmonary Tuberculosis was lower in 1928 than in any previous year.

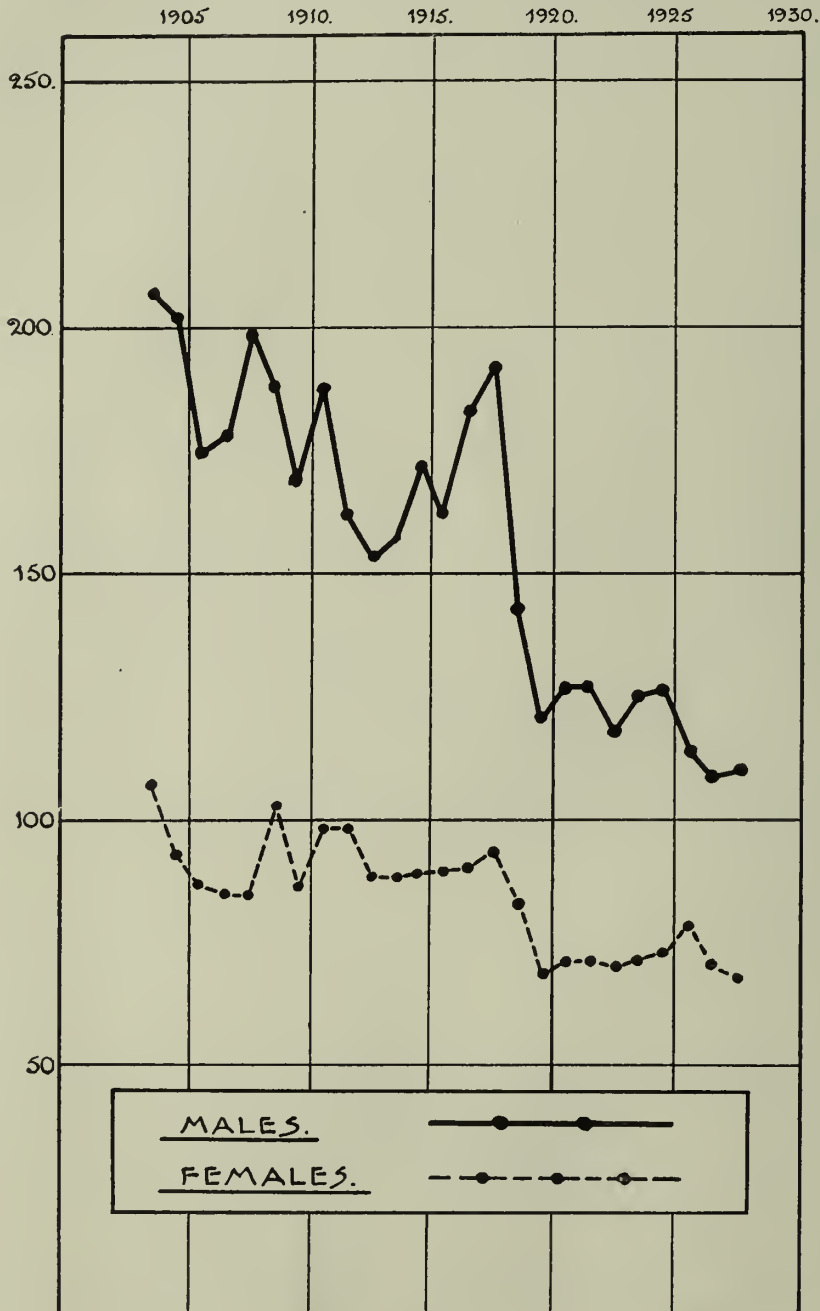
The diagram below illustrates the great decrease which has taken place in the mortality from Pulmonary Tuberculosis, both in Birmingham and in the country as a whole.



Considering the deaths in relation to sex the death-rate from pulmonary tuberculosis was in 1928 among males 1.10 per 1,000, and among females 0.64 per 1,000.

The diagram below shows the male and female mortality during the past 28 years. It will be noted that the mortality among males has fallen more rapidly than that among females and that the difference between them is now considerably smaller than it was 20 years ago.

DEATH RATES FROM PULMONARY TUBERCULOSIS  
PER 100,000 OF THE POPULATION ACCORDING TO SEX.



## (b) OTHER FORMS OF TUBERCULOSIS.

Deaths in 1928	...	...	...	...	125
Mortality rate per 1,000	...	...	...	...	0.13

## RECORD OF PREVIOUS YEARS.

		1918	1919	1920	1921	1922	1923	1924	1925	1926	1927	1928
Deaths	...	214	169	158	145	150	146	121	153	119	160	125

## MORTALITY RATE PER 1,000 IN PREVIOUS YEARS.

		1918	1919	1920	1921	1922	1923	1924	1925	1926	1927	1928
Birmingham	...	.25	.18	.17	.16	.16	.16	.13	.16	.12	.17	.13
England and Wales	...	.37	.29	.26	.24	.23	.23	.22	.21	.19	.18	—

## WORK OF TUBERCULOSIS VISITORS.

The Tuberculosis Visitors, 11 in number, continue their invaluable work of visiting discharged, contact, or suspect cases at varying intervals of weeks or months as necessity demands, of advising them as to the hygienic and dietetic measures to be adopted, and of assisting them in procuring extra nourishment, bed and bedding, etc. All cases which are considered suitable for aid are referred to the Chief Tuberculosis Officer.

## Work done:—

New cases received	...	...	...	...	...	1,826
Primary visits paid	...	...	...	...	...	1,800
Re-visits paid	...	...	...	...	...	20,406
Special re-visits	...	...	...	...	...	9,618
Unsuccessful calls	...	...	...	...	...	2,504
Total Calls	...	...	...	...	...	34,328

Patients provided with shelter	...	...	...	...	...	30
Patients granted extra nourishment	...	...	...	...	...	103
Fresh beds sent out on hire or loan	...	...	...	...	...	64
Total beds now out on hire or loan	...	...	...	...	...	504
Housing nuisances reported to Sanitary Inspectors	...	...	...	...	...	403

59 per cent. of the new cases were sharing a bed.

17 per cent. of the new cases were sharing a bedroom.

## PUBLIC HEALTH (PREVENTION OF TUBERCULOSIS) REGULATIONS, 1925.

No case arose during the year for action under these Regulations.

## PUBLIC HEALTH ACT, 1925. SECTION 62.

No formal action was found to be necessary under this Section during the year.

## ADMISSIONS TO SANATORIA OR HOSPITALS.

The patients admitted to the City Sanatoria during the year were as follows:—

## BIRMINGHAM PATIENTS TREATED AT CITY SANATORIA.

		Yardley Road.	Salterley Grange.	Romsley Hill.	West Heath.	Total.
In sanatorium at beginning of year	...	309	59	88	89	545
Admitted during year	...	894	198	282	341	1715
Discharged	...	749	203	279	218	1449
Died	...	158	4	14	117	293
Remaining at end of year	...	296	50	77	95	518

In addition to the above, 39 cases were admitted to the Royal Cripples' Hospital, 5 to the General and Jaffray Hospitals, 10 to the Queen's Hospital, 26 to the Children's Hospital, and 10 to the Moseley Hall Convalescent Home. In these cases a grant towards the maintenance of the patient is made by the Public Health Committee.

### THE ANTI-TUBERCULOSIS CENTRE.

(Report by DR. G. B. DIXON, Chief Tuberculosis Officer).

The Anti-Tuberculosis Centre, centrally situated in the City is open daily for five days during the week, and on Saturdays for half the day. Six sessions weekly are reserved for patients attending for treatment, supervision, and observation. Thirty-nine sessions, and occasionally more, are set apart weekly for consultations and examinations; in addition, many consultations and examinations are undertaken at the homes of patients by members of the medical staff.

Admissions to the City Sanatoria are decided upon only after examination at the Centre, or at the patient's home, and the sanatorium to which a person is sent depends entirely upon the condition of the patient's disease, etc.

On returning from Sanatoria, patients are re-examined at the Centre and many old patients who have discontinued treatment for various purposes are re-examined from time to time.

The Anti-Tuberculosis Scheme provides 36 beds for the purpose of observation, and these are situated at Yardley Road Sanatorium. Ten are reserved for boys; ten for adult males; eight for adult females; and eight for female children. Their utilization allows us to make a correct diagnosis in many instances in which it would be impossible without the facilities which they offer.

The Scheme is also fortunate in having a large number of beds set apart for the care and treatment of the "hospital" type of case. Advanced male cases are admitted to Yardley Road Sanatorium and advanced female cases to the West Heath Sanatorium. Beds for the treatment of advanced types of tuberculosis are essential upon humanitarian grounds, and in addition, are a prophylactic asset in association with the Public Health work of the city; from this point of view it is advisable that as large a percentage as possible of the deaths annually occurring in the City from pulmonary tuberculosis, should take place in the pavilions provided for patients with advanced disease, as the risk of infection from this type of patient is usually greater during the last six months of life.

### ATTENDANCES AND EXAMINATIONS.

During the year 1928, the total number of attendances made by patients for diagnosis, consultation, observation, advice and treatment was 28,885, the total number of attendances for supervision, observation, advice and treatment was 14,090, the number of examinations made was 9,830 and in addition, there were 4,965 X-ray examinations. As compared with the previous year there was a decrease in the number of attendances for supervision, observation and treatment, and a slight decrease in the number of examinations.

Attendances for supervision, observation, treatment	...	...	...	14,090
Attendances for consultation and examination	...	...	...	9,830
Attendances for X-ray examination	...	...	...	4,965
				<hr/>
				28,885
				<hr/>

During the year 1928, 1,361 new cases of pulmonary tubercle were notified to the Medical Officer of Health, and of this number 1,000 or 73.47 per cent. were examined at the Centre. There were 245 cases of non-pulmonary tuberculosis notified during the year, and 50 or 20.4 per cent. were examined at the Centre.

### TREATMENT RECOMMENDED.

7,019 old and new patients were examined at the Centre during the year. The following table shows the number of newly notified and suspect cases of all varieties of tuberculosis, and the number of patients coming up for re-examination. It also shows the numbers recommended for the different forms of treatment. 930 patients were examined at their own homes.

					First Examinations.		Re-examinations.	
					Newly notified.	Suspects or Contacts.	Old Cases.	Suspects or Contacts.
Sanatorium Treatment	...	...	...	...	569	257	530	19
Dispensary Treatment	...	...	...	...	9	15	84	1
Dispensary for supervision	...	...	...	...	73	180	913	118
Out-patient Light Treatment	...	...	...	...	6	3	9	—
Domiciliary Treatment	...	...	...	...	96	37	1156	110
Home Treatment for other than P.T.	...	...	...	...	—	—	22	2
Hospital Treatment for other than P.T.	...	...	...	...	—	1	1	2
Leaving City	...	...	...	...	—	2	17	3
No Treatment required	...	...	...	...	297	1660	490	337
					1,050	2,155	3,222	592

#### CLASSIFICATION OF PATIENTS ACCORDING TO GROUP OF DISEASES.

The following tables show the classification of the patients examined according to Group of disease; adults and children are shown separately.

##### ADULTS.

					First Examinations.		Re-examinations.	
					Newly notified.	Suspects or Contacts.	Old Cases.	Suspects or Contacts.
Group I.	...	...	...	...	63	46	608	5
Group II.	...	...	...	...	311	112	1426	4
Group III.	...	...	...	...	245	87	531	—
Group IV.	...	...	...	...	29	14	84	—
No definite signs of active tuberculosis	...	...	...	...	258	976	25	380
					906	1235	2674	389

##### CHILDREN.

					First Examinations.		Re-examinations.	
					Newly notified.	Suspects or Contacts.	Old Cases.	Suspects or Contacts.
Group I.	...	...	...	...	7	29	204	3
Group II.	...	...	...	...	10	12	145	4
Group III.	...	...	...	...	7	4	36	3
Group IV.	...	...	...	...	21	16	97	—
No definite signs of active tuberculosis	...	...	...	...	99	859	66	193
					144	920	548	203

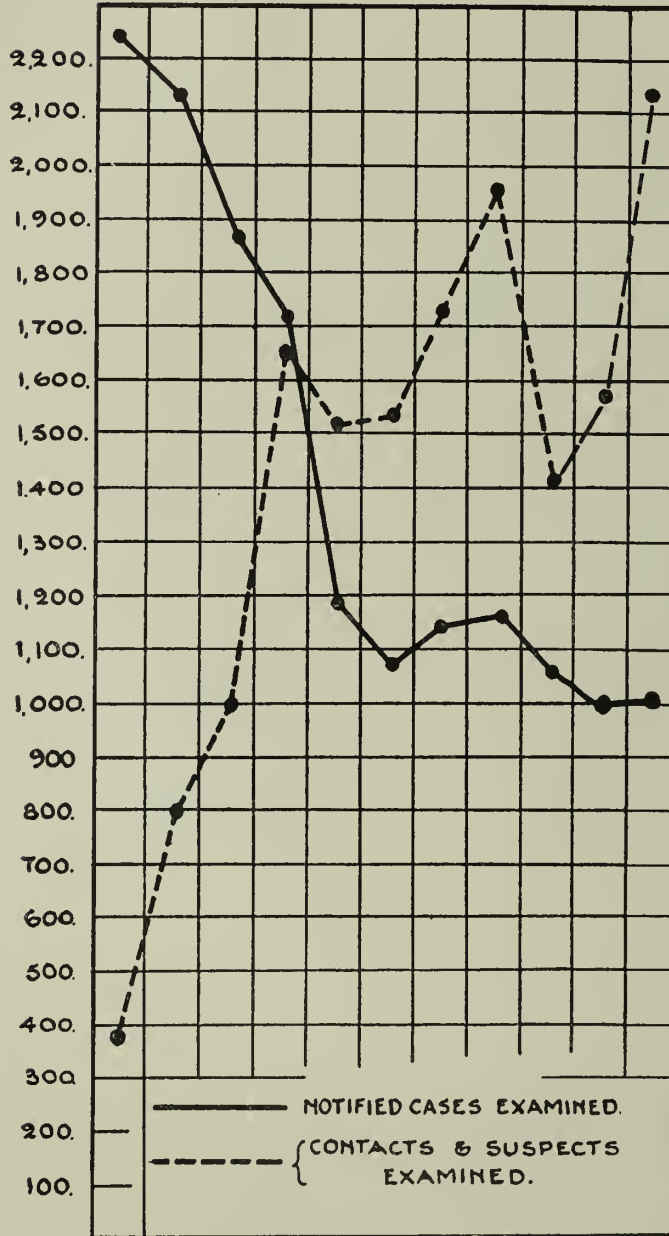
In certain instances patients included in the various Groups are suffering from other forms of tuberculosis in addition to pulmonary, but for convenience are classified as pulmonary cases, when this type of the disease is present in association with other forms.

#### “ CONTACTS ” AND NOTIFIED CASES.

During the past few years there has been a marked reduction in the number of persons notified as suffering from pulmonary tubercle, and as this number diminishes, it is possible to examine a larger number of “ Contacts ” and “ Suspects.” In the following diagram, the figures for notified cases, contacts, and suspects are compared, and the number of the latter examined during 1928 shows a marked increase.

PULMONARY TUBERCULOSIS.

1917. 1918. 1919. 1921. 1922. 1923. 1924. 1925. 1926. 1927. 1928.



The following table shows the working capacity of the newly notified cases when they were examined for the first time. It is interesting to note that among adults 27.59 per cent. were sent to us whilst their working capacity was still unimpaired, and 30.13 per cent. came to us when totally incapacitated. In the case of the children, this point is more emphasised; 70.83 per cent. had an unimpaired working capacity and 6.94 per cent. were totally incapacitated, the working capacity indicated here being ability or otherwise to attend school regularly.

|                             |     |     |     | Newly notified patients. |           | Contacts and Suspects. |           |
|-----------------------------|-----|-----|-----|--------------------------|-----------|------------------------|-----------|
|                             |     |     |     | Adults.                  | Children. | Adults.                | Children. |
| Unimpaired working capacity | ... | ... | ... | 250                      | 102       | 813                    | 858       |
| Impaired working capacity   | ... | ... | ... | 383                      | 32        | 348                    | 55        |
| Totally incapacitated       | ... | ... | ... | 273                      | 10        | 74                     | 7         |
|                             |     |     |     | 906                      | 144       | 1,235                  | 920       |

#### FAMILY HISTORY.

A survey of the family and social history of 4,908 patients who were examined during the year shows that there was no history of existing tuberculosis or knowledge of relatives dying of, or suffering from, tuberculosis in connection with 2,665 or 54.29 per cent. In 2,243 or 45.7 per cent., there was a history of some near relative or intimate friend either being affected with tuberculosis, or having succumbed to it. In 507 instances or 10.33 per cent., the relative affected was the father, and in 215 or 4.38 per cent., the relative affected was the mother, and in 456 or 9.29 per cent. a brother or sister was affected. In 706 instances two or more relatives were known to have suffered from tuberculosis.

#### DENTAL TREATMENT.

The services of a part-time dental surgeon are utilised at the Centre for the necessary treatment of our patients. The treatment is conservative in type, and consists mainly of extractions, fillings and scalings. There is no fund to assist in the provision of artificial dentures. Those patients who wish to provide their own can do so under conditions advantageous to themselves by arrangement with the dentist. The condition of the teeth and gums of most of our patients is carefully noted, and in the table below is briefly summarised the dental condition of patients seen during the year so far as dental caries, masticatory power, and the state of the gums was concerned. The dental surgeon informs me that there were 550 extractions, 7 fillings, and 47 scalings, and dentures were supplied in 35 instances.

#### CONDITION OF TEETH AND GUMS.

| Number of Teeth with infected pulp chambers. |         |              | Masticatory power in Molars and Bicuspids. |              |       | State of Gums. |             |          |
|--|---------|--------------|--|--------------|-------|----------------|-------------|----------|
| None.  | 1 to 4. | More than 4. | Six or more.                               | Less than 6. | None. | Healthy.       | Gingivitis. | Pyorrhœa |
| 1,367  | 2,736   | 449          | 2,951                                      | 1,115        | 576   | 2,910          | 1,052       | 471      |

#### SPUTUM RESULTS.

A very large number of sputum examinations are undertaken during the year on behalf of persons who are referred to us for an opinion. If the first examination gives a negative result, subsequent and repeated specimens are examined by the concentrated method of Ellerman and Erlandsen. It is useless to attach importance to one or two sputum examinations for tubercle bacilli when the result is negative, and unless at least five or six specimens have been examined a negative result should not be given too much importance.

Amongst the new adult patients examined at the Centre during the year, there were 550 or 60.7 per cent. who presented tubercle bacilli in their sputum, and amongst the total number of children examined primarily during the year, 5 or 3.47 per cent. presented a sputum containing tubercle bacilli.

The difficulty of obtaining sputum from children, even when it exists, is recognised, and to compensate for this, when in the Sanatoria, all children whether admitted for observation or treatment, have the fæces examined for tubercle bacilli, and are submitted to a Von Pirquet test. All adult patients who enter observation pavilions have a blood sedimentation test undertaken.

Acid-fast bacilli in the fæces of children, are only discovered amongst our patients in a small percentage of the specimens examined, but when present, a large percentage are proved to be tubercle bacilli after animal inoculation.

#### ADULTS.

|                          |     |     |     | Newly notified patients. |        | Contacts and Suspects. |        |
|--------------------------|-----|-----|-----|--------------------------|--------|------------------------|--------|
| Tubercle Bacilli present | ... | ... | ... | 440                      |        | 110                    |        |
| Tubercle Baccilli absent | ... | ... | ... | 293                      | 258    | 728                    | 976    |
| No sputum                | ... | ... | ... | 173                      | N.A.S. | 397                    | N.A.S. |

## CHILDREN.

|                                 | Newly notified patients. |     |     |     | Contacts and Suspects. |        |
|---------------------------------|--------------------------|-----|-----|-----|------------------------|--------|
| Tubercle Bacilli present ... .. | ...                      | ... | ... | 5   | —                      | —      |
| Tubercle Bacilli absent ... ..  | ...                      | ... | ... | 27  | 99                     | 138    |
| No sputum ... ..                | ...                      | ... | ... | 112 | N.A.S.                 | 782    |
|                                 |                          |     |     |     |                        | 859    |
|                                 |                          |     |     |     |                        | N.A.S. |

## LABORATORY WORK—YARDLEY ROAD SANATORIUM AND THE CENTRE.

At the Sanatorium 2,860 specimens of urine and 5,881 specimens of sputum were examined during the year. Of the sputum specimens examined 1,066 presented tubercle bacilli after staining alone, and the remaining specimens were tested by the sedimentation method devised by Ellerman and Erlandsen. Of these 1,350 or 28 per cent. were found to contain tubercle bacilli; these were not found in every instance after one examination, and in some instances the test had to be repeated on several occasions before a positive result was obtained, as shown in the following table:—

## Tubercle Bacilli found after 1st sedimentation in 873 instances.

|                 |     |   |
|-----------------|-----|---|
| “ “ “ “ 2nd “ “ | 316 | “ |
| “ “ “ “ 3rd “ “ | 94  | “ |
| “ “ “ “ 4th “ “ | 67  | “ |

In the Laboratory at the Centre during the year 7,323 specimens of sputum were examined; 51 other specimens were also examined. Of sputum specimens, 1,664 which were previously negative after one staining, were examined by the concentration method of Davis, the results being as follows:—

|   |     |
|---|-----|
| Tubercle Bacilli demonstrated after 1st concentration ... | 43  |
| “ “ “ “ 2nd “ “   | 11  |
| “ “ “ “ 3rd “ “   | Nil |

## COMPLETED CASES.

During the year 1,843 patients completed a course of treatment or supervision, etc., at the Centre, of whom 1,516 were adults and 327 were children.

In the next table, the working capacity at the commencement, and at the end of a completed period of treatment is given for those old patients who were examined during the year. The group of disease quoted was determined at the first examination.

## WORKING CAPACITY OF PATIENTS ATTENDING CENTRE.

|   | GROUP I.<br>Adults Children |     | GROUP II.<br>Adults Children |    | GROUP III.<br>Adults Children |    | GROUP IV.<br>Adults Children |    |
|---|-----------------------------|-----|------------------------------|----|-------------------------------|----|------------------------------|----|
| Unimpaired working capacity becoming impaired ...                 | 6.                          | 1   | 8                            | —  | 1                             | —  | 1                            | 2  |
| Unimpaired working capacity becoming totally incapacitated ... .. | —                           | —   | —                            | —  | 1                             | —  | —                            | —  |
| Unimpaired capacity for work persisting ...                       | 19                          | 8   | 7                            | 1  | 1                             | —  | 1                            | 4  |
| Impaired capacity for work becoming unimpaired                    | 217                         | 88  | 135                          | 39 | 11                            | 5  | 13                           | 36 |
| Impaired capacity for work becoming totally incapacitated ... ..  | 3                           | —   | 49                           | 1  | 24                            | —  | —                            | —  |
| Impaired capacity persisting ... ..                               | 141                         | 35  | 467                          | 37 | 99                            | 6  | 16                           | 15 |
| Total incapacity becoming impaired ... ..                         | 14                          | 3   | 64                           | 6  | 83                            | 4  | 14                           | 3  |
| Total incapacity becoming unimpaired ... ..                       | 14                          | 6   | 22                           | 7  | 2                             | 3  | 7                            | 9  |
| Total incapacity persisting ... ..                                | 4                           | 1   | 22                           | —  | 46                            | 4  | 4                            | 3  |
|   | 418                         | 142 | 774                          | 91 | 268                           | 22 | 56                           | 72 |

## AFTER CARE.

Results of investigation into present condition of patients treated in the past.

In the following tables are set out, as briefly as possible, the main points in connection with an investigation undertaken to ascertain the conditions of those past patients who received treatment at the Centre between the years 1913-1928 inclusive.

Present condition of patients treated in previous years showing condition of those who were treated for Pulmonary and Non-Pulmonary Tuberculosis:—

| PULMONARY TUBERCULOSIS.                                      | Previous to 1926. |          |           |            | 1926.                    |                   |          |           | 1927.            |                          |                   |          | 1928.            |            |                          |                   |
|--|-------------------|----------|-----------|------------|--------------------------|-------------------|----------|-----------|------------------|--------------------------|-------------------|----------|------------------|------------|--------------------------|-------------------|
|  | Class T.B. plus.  |          |           |            | Class T.B. plus.         |                   |          |           | Class T.B. plus. |                          |                   |          | Class T.B. plus. |            |                          |                   |
|  | Class T.B. minus. | Group I. | Group II. | Group III. | Total (Class T.B. plus). | Class T.B. minus. | Group I. | Group II. | Group III.       | Total (Class T.B. plus). | Class T.B. minus. | Group I. | Group II.        | Group III. | Total (Class T.B. plus). | Class T.B. minus. |
| Discharged as CURED.   | M. 929            | 82       | 131       | 34         | 247                      | —                 | —        | —         | —                | —                        | —                 | —        | —                | —          | —                        | —                 |
|  | F. 1,049          | 55       | 85        | 22         | 162                      | —                 | —        | —         | —                | —                        | —                 | —        | —                | —          | —                        | —                 |
|  | M. 738            | 17       | 4         | 2          | 23                       | —                 | —        | —         | —                | —                        | —                 | —        | —                | —          | —                        | —                 |
|  | F. 655            | 10       | 8         | 6          | 24                       | —                 | —        | —         | —                | —                        | —                 | —        | —                | —          | —                        | —                 |
| DISEASE ARRESTED.  | M. 534            | 56       | 80        | 35         | 171                      | 1                 | —        | —         | —                | —                        | —                 | —        | —                | —          | —                        | —                 |
|  | F. 537            | 36       | 41        | 16         | 93                       | 3                 | —        | —         | —                | —                        | —                 | —        | —                | —          | —                        | —                 |
|  | M. 217            | 1        | 2         | 3          | 6                        | —                 | —        | —         | —                | —                        | —                 | —        | —                | —          | —                        | —                 |
|  | F. 220            | 8        | 4         | 3          | 15                       | —                 | —        | —         | —                | —                        | —                 | —        | —                | —          | —                        | —                 |
| DISEASE NOT ARRESTED.  | M. 466            | 88       | 221       | 230        | 539                      | 102               | 9        | 77        | 27               | 113                      | 84                | 22       | 132              | 44         | 198                      | 116               |
|  | F. 564            | 44       | 121       | 114        | 279                      | 127               | 7        | 50        | 28               | 85                       | 86                | 6        | 72               | 18         | 96                       | 110               |
|  | M. 232            | 1        | 1         | 7          | 9                        | 42                | —        | 1         | 1                | 2                        | 62                | —        | 2                | —          | 2                        | 34                |
|  | F. 200            | 2        | 3         | 4          | 9                        | 33                | 1        | —         | 1                | 2                        | 44                | 1        | 1                | 2          | 4                        | 32                |
| Lost Sight of or otherwise removed from Dispensary Register. | 1,914             | 173      | 244       | 170        | 587                      | 23                | —        | 13        | 8                | 21                       | 8                 | —        | 1                | —          | 1                        | 13                |
|  |                   |          |           |            |                          |                   |          |           |                  |                          |                   |          | 8                | 2          | 10                       |                   |
| DEAD.  | M. 814            | 128      | 642       | 1,295      | 2,065                    | 37                | 5        | 67        | 158              | 230                      | 26                | 1        | 66               | 132        | 199                      | 23                |
|  | F. 570            | 47       | 240       | 634        | 921                      | 54                | 3        | 56        | 102              | 161                      | 45                | 2        | 29               | 100        | 131                      | 15                |
| M. 72  |                   | 1        | 1         | 14         | 16                       | 2                 | —        | —         | —                | —                        | 5                 | —        | —                | —          | —                        | 1                 |
|  | F. 78             | 1        | 6         | 23         | 30                       | 2                 | —        | 1         | 4                | 5                        | 3                 | —        | —                | 4          | 4                        | 3                 |
| TOTALS   | 9,789             | 750      | 1,834     | 2,612      | 5,196                    | 426               | 25       | 265       | 329              | 619                      | 363               | 32       | 303              | 300        | 635                      | 347               |
|  |                   |          |           |            |                          |                   |          |           |                  |                          |                   | 42       | 315              | 270        | 627                      |                   |

ALIVE.

| NON-PULMONARY TUBERCULOSIS.                                  |    |    |   |   | Previous to 1926. |            |               |                   |        | 1926.             |            |               |                    |        | 1927.             |            |               |                    |        | 1928.             |            |               |                    |        |
|--|----|----|---|---|-------------------|------------|---------------|-------------------|--------|-------------------|------------|---------------|--------------------|--------|-------------------|------------|---------------|--------------------|--------|-------------------|------------|---------------|--------------------|--------|
| PRESENT CONDITION OF PATIENTS TREATED IN PREVIOUS YEARS.     |    |    |   |   | Bones and Joints. | Abdominal. | Other Organs. | Peripheral Glands | Total. | Bones and Joints. | Abdominal. | Other Organs. | Peripheral Glands. | Total. | Bones and Joints. | Abdominal. | Other Organs. | Peripheral Glands. | Total. | Bones and Joints. | Abdominal. | Other Organs. | Peripheral Glands. | Total. |
|  |    |    |   |   |                   |            |               |                   |        |                   |            |               |                    |        |                   |            |               |                    |        |                   |            |               |                    |        |
| Discharged as CURED.   | M. | 2  | — | — | —                 | —          | —             | —                 | 2      | —                 | —          | —             | —                  | —      | —                 | —          | —             | —                  | —      | —                 | —          | —             | —                  | —      |
|  | F. | 1  | — | — | —                 | —          | —             | —                 | 2      | —                 | —          | —             | —                  | —      | —                 | —          | —             | —                  | —      | —                 | —          | —             | —                  | —      |
|  | M. | 1  | 4 | — | —                 | —          | —             | —                 | 8      | —                 | —          | —             | —                  | —      | —                 | —          | —             | —                  | —      | —                 | —          | —             | —                  | —      |
|  | F. | —  | 1 | — | —                 | —          | —             | —                 | 9      | —                 | —          | —             | —                  | —      | —                 | —          | —             | —                  | —      | —                 | —          | —             | —                  | —      |
| DISEASE ARRESTED.  | M. | 1  | 4 | — | —                 | —          | —             | —                 | 6      | —                 | —          | —             | —                  | —      | —                 | —          | —             | —                  | —      | —                 | —          | —             | —                  | —      |
|  | F. | —  | 1 | — | —                 | —          | —             | —                 | 2      | —                 | —          | —             | —                  | —      | —                 | —          | —             | —                  | —      | —                 | —          | —             | —                  | —      |
|  | M. | 2  | 3 | 2 | —                 | —          | —             | —                 | 12     | —                 | —          | —             | —                  | —      | —                 | —          | —             | —                  | —      | —                 | —          | —             | —                  | —      |
|  | F. | 2  | 4 | 1 | —                 | —          | —             | —                 | 11     | —                 | —          | —             | —                  | —      | —                 | —          | —             | —                  | —      | —                 | —          | —             | —                  | —      |
| DISEASE NOT ARRESTED.  | M. | 24 | 3 | 5 | 3                 | 5          | 3             | 1                 | 35     | 15                | 3          | 1             | 3                  | 22     | 14                | 1          | 2             | 1                  | 18     | 8                 | 3          | 6             | 5                  | 22     |
|  | F. | 19 | 5 | 4 | 2                 | 7          | 2             | 7                 | 35     | 6                 | 2          | 7             | 3                  | 18     | 12                | 10         | 6             | 4                  | 32     | 4                 | 1          | 2             | 8                  | 15     |
|  | M. | 4  | 7 | 5 | 2                 | 23         | 2             | 1                 | 39     | 11                | 2          | 1             | 19                 | 33     | 6                 | 3          | 1             | 8                  | 18     | 4                 | 10         | 2             | 12                 | 28     |
|  | F. | 7  | 6 | 4 | 4                 | 34         | 2             | —                 | 51     | 6                 | 2          | —             | 8                  | 16     | 2                 | 4          | 1             | 4                  | 11     | 5                 | 1          | 1             | 7                  | 14     |
| Transferred to Pulmonary                                     |    |    |   |   | 1                 | 2          | 1             | 4                 | 8      | —                 | —          | —             | 2                  | 2      | 1                 | —          | —             | —                  | 1      | 2                 | —          | —             | —                  | —      |
| Lost sight of or otherwise removed from Dispensary Register. |    |    |   |   | 5                 | 6          | 4             | 14                | 29     | 1                 | 2          | —             | 2                  | 5      | —                 | 1          | —             | —                  | —      | 1                 | —          | —             | —                  | 1      |
| DEAD.  | M. | 7  | 2 | 4 | —                 | —          | —             | —                 | 13     | 2                 | 1          | —             | —                  | 3      | 2                 | 1          | —             | —                  | 3      | 4                 | —          | —             | —                  | 4      |
|  | F. | 6  | 2 | — | 2                 | 10         | —             | —                 | 10     | 1                 | —          | —             | —                  | 1      | —                 | —          | —             | —                  | 2      | —                 | —          | 1             | 1                  | 2      |
|  | M. | 4  | 5 | — | —                 | —          | —             | —                 | 9      | —                 | 1          | —             | 1                  | 2      | —                 | —          | —             | —                  | —      | 1                 | —          | —             | —                  | 1      |
|  | F. | 2  | 1 | 1 | 2                 | 6          | —             | —                 | 6      | —                 | 1          | —             | —                  | 1      | —                 | 3          | —             | —                  | 3      | —                 | —          | —             | —                  | —      |
| TOTALS   |    |    |   |   | 88                | 56         | 31            | 115               | 290    | 42                | 14         | 9             | 39                 | 104    | 38                | 23         | 11            | 19                 | 91     | 26                | 16         | 12            | 33                 | 87     |

## RADIOLOGICAL WORK.

Radiography in connection with the differential diagnosis of pulmonary disease is as essential as the examination of sputum, when present, if correct conclusions are to be reached. It cannot take the place of other methods of diagnosis but by the combined use of clinical, laboratory, and radiological facilities, errors in diagnosis may be reduced.

It is of equal importance in the diagnosis of bone and joint disease, and where it is systematically used in this connection, the percentage of errors will be lessened.

In addition, the doctor will most probably make a more careful clinical examination and diagnosis after committing himself to a graph record, when he knows that an X-ray examination will immediately follow, and he will have to compare the results with those of his physical examination.

Radiology is essential, too, in association with the treatment of pulmonary tubercle by means of artificial pneumothorax, which we have now practised for many years past. In some pulmonary diseases, after the injection of "lipiodol" into the bronchial system, radiology can be advantageously used in differential diagnosis.

During the year, no less than 3,653 screen examinations were made in the Radiography section, and films were taken in 1,312 cases.

## SUMMARY.

1. There was a slight decrease in the number of patients' attendances during the year 1928 as compared with 1927.
2. No less than 73.47 per cent. of the total number notified in the City during the year as suffering from pulmonary tubercle were examined at the Centre.
3. 930 patients were visited and examined in their own homes.
4. During the year 3,653 X-ray screen examinations of our patients were made and 1,312 radiographs were taken.
5. Amongst adult patients, suffering from tuberculosis, 60.7 per cent. presented tubercle bacilli in their sputum, and amongst the children 3.47 per cent.
6. Of the patients treated during the periods 1913-1928, some 7,077 presented tubercle bacilli in their sputum. Of this number 35.74 per cent. are known to be still alive, 55.52 per cent. are known to be dead, and 8.74 per cent. have been lost sight of.
7. During the same periods, 10,925 patients whose sputum contained no tubercle bacilli were treated. Of this number, 66.06 per cent. are known to be still alive, 16.02 per cent. are known to be dead and 17.92 per cent. have been lost sight of.

## SANATORIA FOR TUBERCULOSIS.

(Report by DR. G. B. DIXON, Chief Tuberculosis Officer)

The Birmingham Public Health Committee has 604 beds available for the treatment and prevention of pulmonary tuberculosis. These beds are distributed in four different sanatoria, namely, Yardley Road Sanatorium, West Heath Sanatorium, Salterley Grange Sanatorium, near Cheltenham, and Romsley Hill Sanatorium, Halesowen. The Yardley Road Sanatorium is situated in a suburban part of the City, about  $3\frac{1}{2}$  miles from its Centre, and has accommodation for 325 patients; the beds are available for male and female adults and children. There are 154 beds for male adults, 10 of which are reserved for the admission of patients for observation purposes, and the remainder are utilised for the treatment of those in the intermediate and advanced stages of tuberculosis. There are 52 beds provided for female adults, including 8 beds reserved for observation purposes. The female patients admitted are those in the early and intermediate stages of tuberculosis. There are 119 beds for the treatment of children, and included in those are 18 beds available for the purpose of observation. Children in all stages of tuberculosis are admitted, and a number of beds are occupied by patients suffering from bone, joint, glandular and abdominal tuberculosis.

The West Heath Sanatorium is situated about 6 miles from the Centre of the City; it contains 116 beds, 92 of which are set apart for the treatment of female adult patients suffering from advanced tuberculosis, while 24 beds are available for male adults.

The Salterley Grange Sanatorium with 68 beds is situated in the Cotswold Hills, about  $3\frac{1}{2}$  miles from Cheltenham, and has accommodation for 38 males and 30 females. The patients selected are all of adult age, and are the most promising from a medical standpoint of all our patients, the majority suffering from tuberculosis in an early stage.

Romsley Hill Sanatorium is situated in the Clent Hills, 11 miles from the centre of the City, and has accommodation for 59 males and 29 females. Those in all stages of the disease are admitted.

Admission to these different Sanatoria is arranged by the staff of Tuberculosis Officers, after examination of the patients at the Municipal Anti-Tuberculosis Centre, 44a, Broad Street. The treatment given to patients in the Sanatoria is on similar lines, and includes hygienic and dietetic treatment, graduated rest, exercise and occupation, the employment of appropriate drugs when indicated, or specific treatment by means of the various tuberculins and vaccines, etc. Heliotherapy, treatment by ultra-violet rays, and artificial pneumothorax are undertaken in suitable cases.

## TOTAL NUMBERS TREATED IN THE SANATORIA AND DURATION OF STAY.

During the year 1928, there were 1,802 patients discharged from all the Sanatoria. Included in this number are 83 patients suffering from surgical tuberculosis who have been treated in Institutions subsidised by the Health Department. Of this number 930 were adult males, 569 were adult females, 175 were male children and 128 were female children.

The average duration of stay, excluding those admitted for observation and who, proving negative, remained only for a short time, and excluding those hospital cases with advanced disease who died within a few days of their admission, was 137.9 days for adult males, 154.7 for adult females, and 222.6 days for children.

RESULTS OF TREATMENT OF PATIENTS AND OF OBSERVATION OF DOUBTFUL CASES  
DISCHARGED FROM RESIDENTIAL INSTITUTIONS DURING THE YEAR 1928.

Duration of Residential Treatment.

| Classification on admission.          | Condition at time of discharge.                        | Under 3 months. |    |     | 3—5 months. |    |     | 6—12 months. |    |     | More than 12 months. |    |     | Total |
|---------------------------------------|--|-----------------|----|-----|-------------|----|-----|--------------|----|-----|----------------------|----|-----|-------|
|                                       |  | M.              | F. | Ch. | M.          | F. | Ch. | M.           | F. | Ch. | M.                   | F. | Ch. |       |
| Class T.B. minus.                     | Quiescent ... ..                                       | 54              | 22 | 5   | 25          | 19 | 9   | 7            | 4  | 22  | 2                    | 3  | 6   | 178   |
|                                       | Improved ... ..  | 54              | 21 | 3   | 21          | 23 | 17  | 5            | 7  | 18  | —                    | 3  | 4   | 176   |
|                                       | No material improvement                                | 18              | 7  | 6   | 2           | 3  | —   | —            | 1  | 1   | —                    | 1  | 2   | 41    |
|                                       | Died in Institution ...                                | 26              | 13 | 1   | 3           | 3  | —   | —            | —  | 1   | —                    | —  | —   | 47    |
| Class T.B. plus. GROUP I.             | Quiescent ... ..                                       | 3               | 5  | —   | 3           | 4  | —   | —            | —  | —   | —                    | —  | —   | 15    |
|                                       | Improved ... ..  | 10              | 3  | —   | 2           | 1  | —   | 2            | —  | —   | —                    | —  | —   | 18    |
|                                       | No material improvement                                | —               | 1  | —   | —           | —  | —   | —            | 1  | —   | —                    | 1  | —   | 3     |
|                                       | Died in Institution ...                                | —               | 1  | —   | —           | —  | —   | —            | —  | —   | —                    | —  | —   | 1     |
| Class T.B. plus. GROUP II.            | Quiescent ... ..                                       | 10              | —  | —   | 7           | 4  | 1   | 1            | 1  | —   | —                    | —  | —   | 24    |
|                                       | Improved ... ..  | 128             | 45 | —   | 66          | 37 | —   | 28           | 18 | —   | 6                    | 3  | 2   | 333   |
|                                       | No material improvement                                | 22              | 22 | —   | 17          | 11 | —   | 5            | 16 | —   | 1                    | 1  | —   | 95    |
|                                       | Died in Institution ...                                | 16              | 2  | 1   | 11          | —  | —   | 6            | —  | —   | 1                    | —  | —   | 37    |
| Class T.B. plus. GROUP III.           | Quiescent ... ..                                       | —               | 1  | —   | 1           | —  | —   | —            | —  | —   | —                    | —  | —   | 2     |
|                                       | Improved ... ..  | 64              | 46 | 1   | 28          | 26 | —   | 8            | 5  | —   | 2                    | 1  | 1   | 182   |
|                                       | No material improvement                                | 41              | 22 | —   | 17          | 20 | 1   | 9            | 6  | —   | 2                    | 3  | —   | 121   |
|                                       | Died in Institution ...                                | 97              | 56 | —   | 15          | 14 | 2   | 7            | 2  | —   | 3                    | 7  | —   | 203   |
| BONES & JOINTS.                       | Quiescent or arrested ...                              | —               | 1  | 2   | 1           | —  | 2   | 2            | 5  | 6   | 8                    | 2  | 28  | 57    |
|                                       | Improved ... ..  | 9               | 2  | 19  | 1           | 1  | 5   | —            | —  | 2   | 2                    | —  | 6   | 47    |
|                                       | No material improvement                                | 2               | 1  | 4   | —           | —  | —   | 1            | —  | —   | —                    | —  | —   | 8     |
|                                       | Died in Institution ...                                | 1               | —  | 1   | —           | —  | —   | 1            | —  | 2   | —                    | —  | —   | 5     |
| ABDOM-INAL.                           | Quiescent or arrested ...                              | —               | 2  | —   | —           | 2  | —   | —            | 1  | 3   | —                    | —  | 2   | 10    |
|                                       | Improved ... ..  | —               | —  | 1   | —           | —  | 1   | —            | —  | 2   | —                    | —  | —   | 4     |
|                                       | No material improvement                                | —               | —  | 1   | —           | —  | 1   | —            | —  | —   | —                    | —  | —   | 2     |
|                                       | Died in Institution ...                                | —               | —  | —   | —           | —  | —   | —            | —  | —   | —                    | —  | —   | —     |
| OTHER ORGANS.                         | Quiescent or arrested ...                              | —               | —  | —   | 1           | 1  | —   | —            | —  | 1   | —                    | —  | 1   | 4     |
|                                       | Improved ... ..  | 1               | —  | —   | —           | 1  | —   | —            | —  | —   | —                    | —  | —   | 2     |
|                                       | No material improvement                                | —               | —  | —   | 1           | —  | —   | —            | —  | —   | —                    | —  | —   | 1     |
|                                       | Died in Institution ...                                | —               | —  | —   | —           | —  | —   | —            | —  | —   | —                    | —  | —   | —     |
| PERIPH-ERAL GLANDS.                   | Quiescent or arrested ...                              | 1               | 1  | 1   | 1           | —  | —   | —            | —  | —   | —                    | —  | —   | 4     |
|                                       | Improved ... ..  | 1               | —  | —   | —           | 1  | —   | 1            | —  | —   | —                    | —  | —   | 3     |
|                                       | No material improvement                                | —               | —  | —   | —           | —  | —   | —            | —  | —   | —                    | —  | —   | —     |
|                                       | Died in Institution ...                                | —               | —  | —   | —           | —  | —   | —            | —  | —   | —                    | —  | —   | —     |
| OBSERVATION FOR PURPOSE OF DIAGNOSIS. | Tuberculous ...<br>Non-Tuberculous ...<br>Doubtful ... | Under 1 week.   |    |     | 1—2 weeks.  |    |     | 2—4 weeks.   |    |     | More than 4 weeks.   |    |     | Total |
|                                       |  | 4               | 1  | 1   | 1           | 1  | 4   | 14           | 8  | 22  | 14                   | 5  | 12  |       |
|                                       |  | —               | —  | 1   | 2           | 1  | 2   | 26           | 20 | 81  | 9                    | 10 | 22  |       |
|                                       |  | —               | —  | —   | —           | 1  | 2   | 1            | —  | —   | 1                    | —  | —   |       |

Note.—“Quiescent.” Cases which have no symptoms of tuberculosis and no signs of tuberculous disease except as are compatible with a completely healed lesion, and in which sputum, if present, is free from tubercle bacilli.

“Improved.” Cases short of “quiescent” in which the general health is fair and the symptoms of tuberculosis have materially diminished.

“No material improvement.”—All other patients who are alive.

#### OBSERVATION PATIENTS.

The beds reserved for the purpose of observation are at the Yardley Road Sanatorium, and vary in number from time to time, the average being about thirty. Observation patients are those who, after careful and repeated examinations at the Centre, are found to be indefinite, either as to the absence or presence of tuberculosis, or as to its activity or otherwise when present, and are usually admitted for a period varying from two to four weeks. Of the 1,719, 266 or 15.47 per cent. were admitted primarily for observation to Yardley Road Sanatorium. The medical findings are shown at the foot of the previous table.

#### DISCHARGED PATIENTS, TABULATED ACCORDING TO SEX AND AGE.

In the following table the patients have been classified according to their sex and age. It will be seen that the largest number of our patients are included in the age-period between twenty-one to twenty-five years.

|                      | Males.      | Females.  |
|----------------------|-------------|-----------|
| 1 to 14 years ... .. | 127         | 107       |
| 15 to 20 „ ... ..    | 106         | 121       |
| 21 to 25 „ ... ..    | 111         | 126       |
| 26 to 30 „ ... ..    | 108         | 91        |
| 31 to 35 „ ... ..    | 106         | 58        |
| 36 to 40 „ ... ..    | 104         | 65        |
| 41 to 45 „ ... ..    | 120         | 39        |
| 46 to 50 „ ... ..    | 122         | 36        |
| 51 to 55 „ ... ..    | 81          | 16        |
| 56 to 60 „ ... ..    | 42          | 6         |
| Over 60 „ ... ..     | 19          | 8         |
|                      | <hr/> 1,046 | <hr/> 673 |

#### CLASSIFICATION OF PATIENTS' DISEASE.

In this table the patients are scheduled according to the classification of the Ministry of Health, as follows:—

GROUP I. Cases with slight constitutional disturbance, if any, e.g., there should not be marked acceleration of pulse nor elevation of temperature except of very transient duration; gastro-intestinal disturbance or emaciation, if present, should not be excessive.

The obvious physical signs should be of very limited extent, as follows:—Either present in one lobe only and in the case of an apical lesion of one upper lobe not extending below the second rib in front or not exceeding an equivalent area in any one lobe; or where these physical signs are present in more than one lobe, they should be limited to the apices of the upper lobes and should not extend below the clavicle and the spine of the scapula.

No complication (tuberculous or other) of prognostic gravity should be present. A small area of dry pleurisy should not exclude a case from this group.

GROUP III. Cases with profound systemic disturbance or constitutional deterioration; with marked impairment of function either local or general, and with little or no prospect of recovery.

All cases with grave complications, whether tuberculous or not, should be classified in this group, e.g., diabetes, tuberculosis of larynx or intestine, etc.

GROUP II. All cases which cannot be placed in Group I. and III.

Patients suffering from non-pulmonary tuberculosis are classified according to the site of the lesion and are placed under Group IV.

#### SPUTUM.

Excluding the 179 observation patients with no active signs from the total number of adult patients discharged from the Sanatoria suffering from pulmonary tuberculosis during the year, 1,034 or 67.14 per cent. presented tubercle bacilli in their sputum whilst in the Sanatoria.

| Sanatoria                   | No sputum persisting | No sputum becoming T.B.— | No sputum becoming T.B.+ | T.B.— persisting | T.B.— becoming T.B.+ | T.B.— becoming no sputum | T.B.+ persisting | T.B.+ becoming T.B.— | T.B.+ becoming no sputum | Totals  |
|-----------------------------|----------------------|--------------------------|--------------------------|------------------|----------------------|--------------------------|------------------|----------------------|--------------------------|---|
| Yardley Road Sanatorium     | 27<br>39<br>101      | 1<br>—<br>—              | 1<br>1<br>—              | 104<br>11<br>1   | 15<br>2<br>—         | 11<br>7<br>15            | 255<br>53<br>3   | 33<br>8<br>—         | 15<br>7<br>3             | 462 Adult Males.<br>128 Adult Females.<br>123 Children.<br>179 Negative Diagnosis.<br><hr/> 892 |
| Romsley Hill Sanatorium     | 4<br>9               | 1<br>1                   | 2<br>3                   | 35<br>7          | 9<br>5               | 2<br>—                   | 130<br>51        | 18<br>6              | 1<br>5                   | 202 Adult Males.<br>87 Adult Females.<br><hr/> 289  |
| Salterley Grange Sanatorium | 12<br>18<br>—        | —<br>—<br>—              | —<br>—<br>—              | 5<br>2<br>—      | 1<br>1<br>—          | 23<br>7<br>1             | 58<br>26<br>—    | 6<br>3<br>—          | 26<br>17<br>—            | 131 Adult Males.<br>74 Adult Females.<br>1 Children.<br><hr/> 206                               |
| West Heath Sanatorium       | —<br>13<br>1         | —<br>1<br>—              | 1<br>5<br>1              | 14<br>27<br>1    | 3<br>3<br>—          | —<br>5<br>—              | 60<br>154<br>1   | 5<br>27<br>—         | —<br>9<br>1              | 83 Adult Males.<br>244 Adult Females.<br>5 Children.<br><hr/> 332                               |

#### OCCUPATIONS.

In the following table the occupations of both male and female adult patients are shown :—

|                               | Males.    | Females.  |
|-------------------------------|-----------|-----------|
| Out-door occupations ... ..   | 94        | 4         |
| Domestic Occupations ... ..   | 15        | 266       |
| Sedentary Occupations ... ..  | 78        | 62        |
| Commercial Occupations ... .. | 29        | 15        |
| Engineering trade ... ..      | 221       | 80        |
| Metal trade ... ..            | 161       | 48        |
| Building trade ... ..         | 75        | 2         |
| Other trades ... ..           | 245       | 88        |
|                               | <hr/> 918 | <hr/> 565 |

#### ILLNESSES PRIOR TO ADMISSION.

In 130 or 8.76 per cent. instances adult patients had a history of having suffered from pleurisy at periods varying from one to twelve years prior to their examination by us. In 107 or 7.21 per cent. of the adult patients there was a history of pneumonia having occurred from one to twelve years previously. Large numbers of patients attributed the onset of their tuberculosis to an attack of influenza, and in the case of many of our child patients measles appears frequently as a probable predisposing cause of tuberculosis.

#### GAIN OR LOSS IN WEIGHT.

Amongst a total of 1,719 patients discharged from Sanatoria, many of whom were advanced hospital cases, having been admitted for the purpose of prophylaxis, 100 or 5.81 per cent. remained stationary, and 1,455 or 84.64 per cent. gained weight in amounts varying from one to fifty pounds.

#### WORKING CAPACITY OF PATIENTS TREATED IN SANATORIA.

The working capacity of patients is shown in the following table :—

|   | Adult Males. | Adult Females. | Children. | Totals.     |
|---|--------------|----------------|-----------|-------------|
| Unimpaired capacity for work becoming impaired ...        | —            | 1              | —         | 1           |
| Unimpaired capacity persisting ... ..                     | 1            | —              | 1         | 2           |
| Impaired capacity for work becoming unimpaired ...        | 87           | 38             | 57        | 182         |
| Impaired capacity for work becoming totally incapacitated | 70           | 31             | 5         | 106         |
| Impaired capacity persisting ... ..                       | 421          | 226            | 47        | 694         |
| Total incapacity for work becoming impaired ... ..        | 119          | 90             | 6         | 215         |
| Total incapacity becoming unimpaired ... ..               | 1            | 8              | 2         | 11          |
| Total incapacity persisting ... ..                        | 179          | 139            | 11        | 329         |
| Negative Diagnosis ... ..                                 | 40           | 32             | 107       | 179         |
|   | <hr/> 918    | <hr/> 565      | <hr/> 236 | <hr/> 1,719 |

## SUMMARY.

The average duration of patients' stay for all the Sanatoria was 137.9 days for adult males, 154.7 for adult females, and 222.6 days for children.

Of the patients from all Sanatoria no less than 15.47 per cent. had passed through the observation beds at Yardley Road Sanatorium.

The largest number of our patients in any demi-decade were those drawn from the age period 21—25 years.

Over 35.13 per cent. of the patients discharged were in Group III., 40.43 per cent. were in Group II., 9.95 per cent. were in Group I., 4.07 per cent. were in Group IV., and 10.41 per cent. had a negative diagnosis.

There were 67.14 per cent. of the total definite patients who presented tubercle bacilli in their sputum whilst in the Sanatoria. The number who showed bacillary loss, decided after three examinations, was 190 or 19.36 per cent.

Over 84 per cent. of all patients discharged from Sanatoria gained weight in amounts varying from one to fifty pounds; only 5.81 per cent. remained stationary.

Some 293 patients died in "hospital" beds in the various Sanatoria. This figure represents 34.88 per cent. of the total deaths from pulmonary tubercle occurring in the City during the year.

## TREATMENT IN THE LIGHT CLINIC, CITY SANATORIUM, YARDLEY ROAD.

(Report by DR. G. B. DIXON, Chief Tuberculosis Officer).

## STAFF.

The work of the Light Clinic at the City Sanatorium, Yardley Road, Birmingham, is directed by Dr. G. B. Dixon, Medical Superintendent of the Sanatorium, who received a course of training at the Finsen Institute, Copenhagen.

The nursing staff includes a Sister, two staff nurses and one probationer. The Sister has worked continuously in the department for about four and a half years.

The Clinic is open on five days weekly from 9 a.m. till 6 p.m. and on Saturdays from 9 a.m. till 2 p.m. and there are Evening Sessions on Mondays, Wednesdays, and Fridays from 6 p.m. till 8.30 p.m. for those patients who are able to follow their employment.

The Clinic is utilised for the treatment of patients resident in the Sanatorium, and for those who are out-patients at the Anti-Tuberculosis Centre, many of the latter having previously been residential patients in the Sanatoria. Every patient treated in the Light Clinic is suffering from tuberculosis in one form or another. The majority are the subjects of bone and joint tuberculosis, laryngeal tuberculosis, tuberculosis of the glands, abdomen, lupus, etc.

## SOURCE OF ARTIFICIAL LIGHT.

The artificial light is derived from four open flame carbon-arc lamps, consuming 75 amperes. Direct current is used, and the voltage is sixty-five.

Two lamps are used in each light treatment room. In one room they are fitted with simple non-cored carbons. The period of exposure to this lamp for a general bath, as a maximum, may be from one to two hours. The spectrum of light from this lamp is said to approximate more nearly to the spectrum of sunlight, than that of many other lamps. These lamps are used as a general bath, the whole body being exposed.

In many cases of tuberculosis, where the lesion is a superficial one, as in the cases of lupus vulgaris, ulcerations and sinuses, the local application of artificial light in association with the general bath will be found to give better results than are usually obtained from general or local irradiations alone.

For local irradiation, we utilise a tungsten and carbon-arc lamp of 5 amps, with a voltage of 220, the light from which is concentrated through a quartz lens.

## PULSE AND TEMPERATURE READINGS.

Treatment by means of the general light baths, as a rule, produces no deleterious effect upon the pulse and temperature records of our patients. Occasionally increases in pulse rate, and a rise of temperature have been noted after treatment, but in most instances they have been transient. Such rises are more likely to occur where pulmonary tuberculosis is an associated lesion,

The marked improvement which occurs in the muscular tone of immobilised limbs after ultra-violet irradiation, is noticeable.

In association with the treatment of lupus vulgaris by means of ultra-violet irradiation other forms of treatment for this disease should not be ignored. We have found in many of these cases that the local application of liquor hydrargyri nitratis has been of benefit.

The tendency to regard the application of artificial light to those suffering from tuberculosis as a complete method of treatment in itself, should be guarded against. The best results can only be obtained when it is associated with other forms of treatment.

It is well to remember, too, that whatever treatment is used for tuberculosis, it must be undertaken before the disease is advanced, whilst the patient is capable of response, and it must be of long duration, irrespective of the site of the lesion, if good results are to be anticipated. Sufferers from laryngeal tuberculosis cannot be excused from the prolonged observation of silence, or the use of the cautery, nor can those with bone and joint tuberculosis be relieved from the tedium of immobilisation because of actinotherapy.

#### PATIENTS COMPLETING TREATMENT DURING 1928.

The total number of patients discharged or completing treatment during the year 1928, was fifty-five. This number includes twenty-one adult males, twenty adult females, seven male children, and seven female children. Of the fifty-five patients treated, forty-three completed a satisfactory course of treatment, four of which have since died. Twelve failed to complete a satisfactory course of treatment, one of which has since died.

Of those who completed treatment during the year, twenty-three were cases of bone and joint tuberculosis, eleven were cases of abdominal tuberculosis, seven were cases of peripheral adenitis, and the remaining fourteen were suffering from tuberculosis in other organs.

In the majority of instances, patients received artificial light treatment and sanatorium treatment concurrently; the majority after discharge from the sanatorium continued to attend the Light Clinic as out-patients.

#### TREATMENT MUST BE PROLONGED.

It is an advantage if the initial period of artificial light is associated with sanatorium treatment. In most instances of tuberculous disease, a course of artificial light treatment extending over a period of less than six months will, as a rule, not produce satisfactory results. In many instances treatment must be continued for eighteen months to two years, when exposures are given on alternate days.

#### LENGTH OF TREATMENT AND NUMBER OF EXPOSURES.

The average length of time during which our "completed" patients received artificial light treatment was approximately 73 weeks. The average number of exposures was approximately 184, and the average gain in weight in each case was approximately  $5\frac{1}{2}$  lbs.

#### PATIENTS WHO DID NOT COMPLETE TREATMENT.

The patients who discontinued treatment for various reasons numbered 12. They included cases of tuberculous bones and joints, abdominal tuberculosis, lupus, and peripheral glands. The majority were cases of long standing and fairly extensive disease.

On December 31st, 1928, 142 patients were having treatment in the Light Clinic. This number included patients suffering from bone and joint tuberculosis, tuberculous adenitis, laryngitis, lupus vulgaris, and abdominal tuberculosis, most of whom are making good progress.

#### COST OF CURRENT.

The cost of current for the working of the Light Clinic was 1/8.2d. per hour.

# VENEREAL DISEASES.

The following table shows the total number of new cases of Syphilis and Gonorrhœa treated each year since 1918 :—

| Year. | New cases of Syphilis. |         |           |        |     | New cases of Gonorrhœa. |         |           |        |
|-------|------------------------|---------|-----------|--------|-----|-------------------------|---------|-----------|--------|
|       | Male.                  | Female. | Children. | Total. |     | Male.                   | Female. | Children. | Total. |
| 1918  | 502                    | 355     | —         | 857    | ... | 588                     | 100     | —         | 688    |
| 1919  | 782                    | 459     | —         | 1,241  | ... | 1,399                   | 187     | —         | 1,586  |
| 1920  | 704                    | 441     | —         | 1,145  | ... | 1,190                   | 185     | —         | 1,375  |
| 1921  | 423                    | 343     | —         | 766    | ... | 825                     | 131     | —         | 956    |
| 1922  | 220                    | 237     | —         | 457    | ... | 628                     | 83      | —         | 711    |
| 1923  | 296                    | 239     | —         | 535    | ... | 666                     | 89      | —         | 755    |
| 1924  | 291                    | 301     | 18        | 610    | ... | 691                     | 73      | 5         | 769    |
| 1925  | 277                    | 240     | 23        | 540    | ... | 667                     | 220     | 5         | 892    |
| 1926  | 231                    | 270     | 43        | 544    | ... | 692                     | 185     | 7         | 884    |
| 1927  | 278                    | 298     | 62        | 638    | ... | 660                     | 289     | 26        | 975    |
| 1928  | 245                    | 306     | 56        | 607    | ... | 781                     | 348     | 29        | 1158   |

*Note.*—About 90 per cent. of these cases are Birmingham residents.

The Clinics at which these persons were treated in 1928 were as follows :—

|   | New cases of |            | Total      | Total        |
|---|--------------|------------|------------|--------------|
|   | Syphilis     | Gonorrhœa. | new cases. | attendances. |
| General Hospital ...<br>(for men and women)         | 394          | 857        | 1,251      | 70,527       |
| Children's Hospital ...<br>(for children only)      | 17           | 13         | 30         | 735          |
| Aston Street Clinic ...<br>(for mothers and babies) | 196          | 288        | 484        | 5,498        |

Particulars of the cases treated during 1928 are given below :—

|   | Syphilis. |          |          |        | Gonorrhœa. |          |           |        |
|---|-----------|----------|----------|--------|------------|----------|-----------|--------|
|   | Males.    | Females. | Children | Total  | Males.     | Females. | Children. | Total  |
| Total number of new cases   | 245       | 306      | 56       | 607    | 781        | 348      | 29        | 1,158  |
| Total number of attendances   | 12,453    | 10,067   | 811      | 23,331 | 46,752     | 5,830    | 847       | 53,429 |
| Aggregate number of in-patient days                                     | 148       | 461      | —        | 609    | 362        | 1,104    | —         | 1,466  |
| Ceased attendance before completion of treatment                        | 63        | 102      | 31       | 196    | 118        | 36       | 3         | 157    |
| Ceased attendance after completion of treatment, but before final tests | 51        | 33       | 3        | 87     | 295        | 28       | 5         | 328    |
| Transferred to other Centres after treatment                            | 7         | 13       | 7        | 27     | 29         | 16       | 3         | 48     |
| Discharged or died after completion of treatment and observation        | 21        | 32       | 23       | 76     | 101        | 58       | 14        | 173    |
| Number of patients under treatment or observation on January 1st, 1929  | 551       | 584      | 117      | 1,252  | 979        | 622      | 38        | 1,639  |

The reason for the substantial increase in the number of new cases of gonorrhœa attending, and for the stationary figure with regard to the number of new cases of syphilis attending, cannot be definitely stated. The explanation may be that the known effectiveness of the clinical treatment of syphilis is fast reducing its prevalence to a degree counterbalancing the tendency to more ready attendance at the Clinic, while the recognized relative ineffectiveness of treatment of gonorrhœa has failed to make a reduction proportionate to the freer use made of the Clinic. There may, of course, be an actual increase in the prevalence of gonorrhœa. The heavy incidence of ophthalmia of the new born (page 119) during the year would favour an actual increase in the disease gonorrhœa were it not that an uncertain proportion of the ophthalmia cases appeared to be non-venereal in origin.

## SUPPLEMENTARY REPORT ON VENEREAL DISEASES IN BIRMINGHAM FOR 1928.

(By DR. ERIC W. ASSINDER).

During 1928 there were three centres working under the Public Health Authorities in Birmingham :—

- (1) The General Hospital Centre.
- (2) The Aston Street Centre.
- (3) The Children's Hospital Centre.

The year showed a large increase in attendances over previous years at all the above Clinics, the total increase being, as will be seen from the statistical reports, 10,959.

This figure is made up of:—

|                                 |     |     |     |     |     |       |
|---------------------------------|-----|-----|-----|-----|-----|-------|
| Increase at General Hospital    | ... | ... | ... | ... | ... | 9,968 |
| Increase at Aston Street        | ... | ... | ... | ... | ... | 786   |
| Increase at Children's Hospital | ... | ... | ... | ... | ... | 205   |

It will also be seen that these figures are not so much due to an increase in the number of new cases as to a better attendance of Patients under treatment.

I am convinced that for the proper treatment of Venereal diseases frequent and regular attendance is essential, and I regard such an increase in the number of attendances as an indication that the average case of venereal disease is obtaining better treatment than formerly.

I have always tried to emphasise how important early treatment is in venereal disease, and it is a good sign that patients appear to be attending at an earlier stage than was often the case in the past.

The number of cases of acute gonorrhœa has been very heavy, nearly 600 male cases attending for treatment at the General Hospital alone for 1928. Unfortunately, the number of defaulters is still far too large.

The number of women patients continues to be small in comparison with the men—especially in cases of gonorrhœa—although Aston Street Clinic shows an increase of 90 over 1927. In the hope of improving this position we have started an additional Women's Clinic at the General Hospital for 1929.

The increase in the clinical work must involve a heavy burden on the Laboratory work and I should like to bring to the notice of the Committee the large increase in the number of Pathological Examinations from the Venereal Diseases Centres which have been examined at the City Laboratory.

The new building at the General Hospital is nearly completed and I am sure that when this becomes occupied it will provide greater comfort and privacy for the patients and will also enable the staff to carry out their work with much greater efficiency.

#### CITY BACTERIOLOGICAL LABORATORY.

The following return of work done at the Laboratory shows statistically the scope and nature of the work done.

##### ANNUAL RETURN FOR YEAR ENDING DECEMBER 31ST, 1928.

|                             |     |     |     |     |     |     |                    |
|-----------------------------|-----|-----|-----|-----|-----|-----|--------------------|
| Diphtheria Swabs            | ... | ... | ... | ... | ... | ... | 20,458             |
| Fæces                       | ... | ... | ... | ... | ... | ... | 61                 |
| Milks                       | ... | ... | ... | ... | ... | ... | 2,657              |
| Shell Fish                  | ... | ... | ... | ... | ... | ... | 84                 |
| Sputum for Tubercle Bacilli | ... | ... | ... | ... | ... | ... | 2,706              |
| Vaccines                    | ... | ... | ... | ... | ... | ... | 6                  |
| Venereal Diseases           | ... | ... | ... | ... | ... | ... | 21,957             |
| Waters                      | ... | ... | ... | ... | ... | ... | 474                |
| Widals for Enteric Fever    | ... | ... | ... | ... | ... | ... | 681                |
| Miscellaneous               | ... | ... | ... | ... | ... | ... | 1,111              |
|                             |     |     |     |     |     |     | <hr/> 50,195 <hr/> |

#### REPORT ON THE CITY HOSPITALS.

(By DR. E. H. R. HARRIES, Medical Superintendent).

At the beginning of the year, both Little Bromwich and Lodge Road Hospitals were receiving patients; the latter, cases of scarlet fever only. Toward the end of January, Lodge Road Hospital was closed, all the patients being transferred to Little Bromwich. Temporary use was again made of part of the accommodation at Lodge Road, for convalescent cases of scarlet fever for a month in the Autumn. Towards the end of the year, the Taplow wards at Witton Hospital were utilised for a few weeks for the same purpose. Pending the completion of the new blocks I and J at Little Bromwich, accommodation for scarlet fever has been somewhat restricted: on the other hand, there were not sufficient cases of the disease to warrant the continued use of the wards at Lodge Road Hospital. Thus, supplementary accommodation was utilised for short periods only, as necessity arose.

The occurrence of a number of cases of smallpox necessitated the opening of Witton Hospital in January. Although the great majority of cases occurred in January and February, sporadic cases were admitted at intervals until September.

The following table shews the number of direct admissions during the calendar year (transferred convalescent cases are not shewn). The figures have *not been revised for diagnosis*. The main infections—diphtheria, scarlet fever and smallpox are analysed and discussed in subsequent sections of the report.

TABLE 1. Direct admissions (not revised for diagnosis).

|                                    | Diphtheria. | Scarlet Fever. | Small-pox. | Miscellaneous infections. | Total. |
|------------------------------------|-------------|----------------|------------|---------------------------|--------|
| In Hospital on Dec. 31st, 1927 ... | 280         | 124            | —          | 5                         | 409    |
| Admitted during 1928 ...           | 1,909       | 934            | 58         | 63                        | 2,964  |
| Discharged during 1928 ...         | 1,807       | 934            | 57         | 59                        | 2,857  |
| Died during 1928 ...               | 72          | 8              | 1          | 5                         | 86     |
| Remaining on Dec. 31st, 1928 ...   | 310         | 116            | —          | 4                         | 430    |

(104 cases of scarlet fever convalescents, transferred from one hospital to another, are not shewn in the above table).

#### DIPHTHERIA.

Out of the total of 1,909 cases admitted as suffering from diphtheria, 458 (23.9 per cent.) were cases of bacteriological diphtheria. Of this latter total 316 were suffering from pathological conditions other than diphtheria; 42 were carriers of virulent diphtheria bacilli, and 100 shewed no evidence of disease. The latter were either bacteriologically free on repetition of the swab immediately after admission to hospital, or were carrying organisms which were reported to be non-toxic. 127 cases which were not swabbed before admission, shewed no evidence of diphtheria; all, save 20 of these—who shewed no evidence of disease—were suffering from other pathological conditions. This leaves a net total of 1,314 cases of clinical diphtheria notified as such; 20 of these cases were suffering on admission from an inter-current acute infection. For statistical purposes, these latter cases have been regarded as cases of diphtheria purely. To the total of 1,314 have to be added 3 cases notified as scarlet fever, but who were actually suffering from diphtheria. This makes the corrected total of cases of clinical diphtheria under treatment, 1,317.

From the gross total of 72 deaths occurring amongst patients notified as diphtheria have to be subtracted 15 who were not suffering from that disease. In the 57 fatal cases which remain have to be included, for statistical purposes, 12 patients who were suffering from an inter-current infection, such as measles or whooping cough, at the time of admission. The case mortality rate for diphtheria worked out, on these *corrected* figures upon the Registrar-General's \*formula, is 4.39 per cent.

Of the 57 fatal cases, 12 died in less than 24 hours after admission. In 1927, out of the same total of 57 deaths occurring amongst 1,307 cases of diphtheria, no less than 21 died within 24 hours of admission.

The fatal cases of diphtheria are further analysed in the following table:—

TABLE 2.

(57 fatal cases of diphtheria arranged according to the day of disease on admission to hospital).

| Admitted to hospital on— | No. of cases. | First seen by practitioner on—<br>Day of Disease. |     |     |     |     |     |     |     | Later than 8th |
|--------------------------|---------------|---|-----|-----|-----|-----|-----|-----|-----|----------------|
|                          |               | 1st   | 2nd | 3rd | 4th | 5th | 6th | 7th | 8th |                |
| 1st day of disease ...   | 3             | 3   |     |     |     |     |     |     |     |                |
| 2nd " " " ...            | 7             |   | 7   |     |     |     |     |     |     |                |
| 3rd " " " ...            | 10            |   | 5   | 5   |     |     |     |     |     |                |
| 4th " " " ...            | 16            | 2   | 5   | 4   | 5   |     |     |     |     |                |
| 5th " " " ...            | 2             |   | 1   |     |     | 1   |     |     |     |                |
| 6th " " " ...            | 9             |   | 2   | 5   |     | 1   | 1   |     |     |                |
| 7th " " " ...            | 1             |   |     |     | 1   |     |     |     |     |                |
| 8th " " " ...            | 3             | 1   |     | 1   |     |     | 1   |     |     |                |
| Later than 8th ...       | 6             | 2   |     |     |     | 1   |     |     |     | 3              |
|                          | 57            | 8   | 20  | 15  | 6   | 3   | 2   | 0   | 0   | 3              |

15 of the 57 fatal cases had been swabbed by the practitioner before admission. Only 6 of the total received antitoxin before admission to hospital (4 without waiting for the result of the swab; 2 after the swab result had been received).

\* Deaths x 100.

Half the sum of admissions, discharges and deaths.

In 12 of the fatal cases, death occurred within 24 hours; in 4, between 24 and 48 hours; in 10, between 2 and 5 days; in 17, between 5 and 10 days; in 10, between 10 and 20 days; and in 4, over 20 days after admission to hospital.

#### STREPTO-DIPHTHERIA.

Apart from those cases presenting definite clinical signs of a double infection of diphtheria and scarlet fever, a number of cases of diphtheria were admitted—especially at the beginning and again towards the end of the year—which shewed evidence of an associated streptococcal infection of the throat. It was found that these cases only responded, completely and satisfactorily, to specific therapy when a dose of scarlet fever antitoxin was given in addition to diphtheria antitoxin.

#### INTRAVENOUS ADMINISTRATION OF DIPHTHERIA ANTITOXIN.

The administration of diphtheria antitoxin by the intravenous route has been adopted in an increased number of cases of the most severe type and in much greater unitage than was formerly given by this route in this hospital. Whilst the aggregate number of units of antitoxin given to the severe case of diphtheria has been much the same as in previous years, a greater proportion of the aggregate dose has been injected intravenously, instead of intramuscularly.

Individual cases, as judged by results, have seemed to provide abundant justification for the employment of the intravenous route. It is clear, however, that in the assessment of the share of a therapeutic method, or of a modification of an established method, in reducing the fatality rate in an acute infection, not only must opinion be based upon a sufficient number of cases, but all other relevant factors tending to decrease the fatality rate in successive years must be taken into account. No one factor, and especially no curative one, can be pointed to as having been wholly responsible for the notable reduction in the fatality rate from diphtheria which has taken place in Birmingham, as in other large centres of population, during the last few years. It may, however, be said with confidence that a large unitage of concentrated or "refined" antitoxin given intravenously is the method of choice in the case of malignant or hyper-toxic diphtheria.

#### ELECTRO-CARDIOGRAPH.

As recorded in last year's report, an electro-cardiograph has been installed, and Dr. K. Douglas Wilkinson appointed as Cardiologist to the hospital. Considerable instrumental difficulties were encountered owing to the type of current supplied to the hospital. In the end, it was found necessary to work the electro-cardiograph from storage batteries. In spite of the interruptions thus brought about, a considerable amount of valuable preliminary work has been carried out which, while not as yet sufficient in amount to report upon, does shew very definitely that most valuable knowledge is likely to be obtained about the heart in diphtheria by graphic methods. When the new blocks are complete, eight wards in the hospital—especially wired for cardiographic purposes—will be available. Thus, there will be no lack of clinical material for investigation. Systematic observations, upon an extended scale, are being carried out under the guidance of Dr. Wilkinson.

#### DIPHTHERIA CARRIERS.

During the year, 112 operations were performed for the removal of tonsils and/or adenoids in persistent carriers of toxic diphtheria bacilli. One return case arose as the result of the discharge of these 112 patients from hospital. From the infecting case had been obtained before discharge three consecutive negative sets of swabs. The child, however, was a chronic nose picker.

In last year's report, the installation of a mercury vapour ultra-violet lamp was recorded. The primary purpose of this lamp was the treatment of the diphtheria carrier by *local* applications of ultra-violet rays. As in the case of the electro-cardiograph, instrumental difficulties, due to current supply, were encountered, and although these difficulties were ultimately overcome, the lamp was out of action for considerable periods. The number of carriers so far treated by the lamp is not large—about 50 or 60. The results obtained have been disappointing and in no way comparable in rapidity or certainty to those obtained by tonsillectomy and the removal of adenoids. Indeed, in some of the carriers treated by the ultra-violet lamp, resort had ultimately to be made to surgical methods for their clearance. Surgical methods can be relied upon to clear the tonsillar carrier promptly, and in the majority of cases, the nasal carrier also. Numerous, controlled trials of a solution of gentian violet, sprayed on to the nasal and post-nasal mucosa, are being carried out by Dr. W. M. MacFarlane. The results so far obtained are sufficiently good to warrant further and extended trials of the method, which is simple of application.

#### DIPHTHERIA IN THE "IMMUNISED."

With the large increase in the number of children in the city who have undergone, or who are actually undergoing, active immunisation against diphtheria, it is inevitable that a certain number should find their way into the hospital with a notification of diphtheria. This is especially likely to

occur in a city where the practice of swabbing is so extensively carried out. It is of great importance that such cases should be carefully investigated and recorded. During the year, 18 cases were admitted to Little Bromwich Hospital, and are analysed below :—

- (a) Three children who had received an incomplete course, or who had been immunised very recently, were admitted.
  - i. Single dose of T.A.M. one week before admission to hospital. No clinical evidence of diphtheria; diagnosis, scarlet fever.
  - ii. Two doses of T.A.M., the second dose being a month before admission. Diagnosis; clinical diphtheria.
  - iii. Three doses of T.A.M., the third dose being given two weeks before admission to hospital. Diagnosis; clinical diphtheria.
- (b) Nine cases were notified, and admitted to hospital, as diphtheria. All these patients had received a complete course of three doses of T.A.M. at intervals varying from 5 to 18 months before admission. None shewed any evidence of clinical diphtheria on admission to hospital. The Schick test was negative in each of the nine cases when performed immediately after admission to hospital. Three were shewn to be carriers of diphtheria bacilli toxic to guinea pigs, and two to be carriers of non-toxic organisms without evidence of disease. Two others who had clinical follicular tonsillitis were also carriers of toxic organisms, and the remaining two had follicular tonsillitis with negative swabs.
- (c) Three cases were admitted who had had a complete course of T.A.M., two years previously. All three were Schick *positive*, but none of the three shewed any evidence of clinical diphtheria. The result of swabs and of virulence tests after admission to hospital shewed toxic organisms in all three cases. No antitoxin was given; the Schick test was repeated in each case within three weeks of admission, and in each case had become negative.
- (d) Two children who had received the full course of T.A.M. and who were known to be Schick negative as a result, were given antitoxin by the practitioner on the strength of a positive swab. In neither case was there any evidence of clinical diphtheria on admission to hospital. On repetition of the swabs, and as a result of virulence tests, one child was shewn to be a carrier of toxic, and the other of non-toxic organisms.
- (e) One child was admitted who had completed the course of T.A.M. 9 months previously. No confirmatory Schick test had been done in this case. This boy had, on admission, severe clinical diphtheria and at once received a large dose of antitoxin. It was inadvisable on clinical grounds to delay antitoxin until a Schick test could be performed. Two other children in the same family who had also received three doses of T.A.M. 9 months previously were admitted at the same time. Neither of these two children shewed evidence of clinical diphtheria, and in each case the Schick test was negative, the swabs being positive and the organisms toxic. Thus, in one of three children of the family, a course of T.A.M. had failed to produce immunity over a period of nine months, but had been successful in the case of the other two.

These cases emphasise the importance of the confirmatory Schick test wherever possible after a course of T.A.M.

#### SCARLET FEVER.

The net total of cases of scarlet fever admitted to hospital arrived at after subtracting 86 cases which proved not to be scarlet fever and adding 27 cases sent in as diphtheria, but which were actually suffering from scarlet fever, is 875. The net number of deaths ascribed, either wholly or in part, to scarlet fever was only 6. These fatal cases were as follows :—

1. Toxic scarlet fever and convulsions.
2. Toxic scarlet fever and phlegmonous angina.
3. Scarlet fever and acute peri and endo-carditis.
4. Scarlet fever; septicæmia and pneumonia. (Puerperal case).
5. Cerebral embolism; bronchiectasis and scarlet fever.
6. Diabetes and scarlet fever.

Regarding, for statistical purposes, all these deaths as due to scarlet fever, the case mortality (on the Registrar-General's formula) works out at 0.68 per cent.

There has been a notable absence of septic scarlet fever; only one case of this type having been admitted during the year.

Scarlet fever antitoxin has been given intramuscularly in a considerable number of cases with very beneficial effects, especially, of course, upon the toxæmia of the disease.

## SMALLPOX.

During the year, 54 cases of Smallpox were admitted to the Smallpox Hospital at Witton. In addition, four patients were admitted for observation and proved not to be cases of Smallpox. 49 of the total number of cases were admitted during January and February and 47 of these cases were removed from the men's side or casual wards of two workhouses; 46 being inmates, and one, an attendant.

In March and April, two cases from private addresses were admitted. Of three cases admitted during June and July, two came from private houses and one from a workhouse casual ward. A single case was admitted in September in a late stage of the disease. The infection had been derived from a northern seaside town. Of the 54 cases, all except 4, were males. The age distribution and state of vaccination of the 54 verified cases are set out in the table below:—

| Age Group:—<br>No. of cases. | 10—<br>2 | 15—<br>— | 20—<br>3 | 30—<br>2 | 40—<br>6 | 50—<br>15 | 60—<br>18 | 70—<br>6 | 80—<br>2 | Total.<br>54 |
|------------------------------|----------|----------|----------|----------|----------|-----------|-----------|----------|----------|--------------|
| Vaccinal state:—             |          |          |          |          |          |           |           |          |          |              |
| a. Unvaccinated              | ... 2    | —        | 3        | 2        | —        | 2         | 1         | 2        | —        | 12           |
| b. Infancy only              | ... —    | —        | —        | —        | 6        | 11        | 16        | 4        | 1        | 38           |
| c. Revaccinated              | ... —    | —        | —        | —        | —        | 2         | 1         | —        | 1        | 4            |

The four patients who gave a history of revaccination had been revaccinated 62, 55, 39 and 27 years prior to the attack of Smallpox. All the 54 cases were the prevailing mild type. There was one death; the patient, a man aged 69, vaccinated in infancy, died primarily of senility and arterio sclerosis; his modified discrete attack of Smallpox was a contributory factor only.

## IMMUNISATION OF NURSING STAFF.

As in previous years, all new members of the nursing and domestic staffs have been tested for susceptibility to diphtheria and scarlet fever, by means of the Schick and Dick tests immediately after entry. Those proved to be susceptible to either or both diseases have been actively immunised. During the year, no case of clinical diphtheria has occurred amongst the staff. Four nurses known to be Schick negative, either on entry or as a result of active immunisation, complained of sore throat. The clinical appearances in each case were those of tonsillitis. No diphtheria membrane was to be seen: from all four, positive swabs were obtained, and the organisms were toxic. Constitutional disturbance was very slight. No antitoxin was given. Three of the nurses became bacteriologically free in a few days: the fourth remained a carrier for many weeks.

With regard to scarlet fever: three probationers during the year contracted the disease; one, who for some reason had not been Dick tested or immunised on joining, as long as 22 months after entry: the second nurse, Dick positive, 12 days after entry and, therefore, before active immunity could be brought about; the third, *after* active immunisation had been produced as judged by the reversal of the Dick test from positive to negative. This probationer, Dick positive on admission, was actively immunised, receiving in all 36,000 skin test doses of scarlet fever toxin, the final dose being 20,000 s.t.d. The Dick test repeated a month after this course was negative. A month later still, the girl contracted scarlet fever; the Dick test was then again positive.

The number of skin test doses at present employed to produce active immunity to scarlet fever in Dick positive members of the staff, aggregates 36,000. This includes a final s.t.d. of 20,000. In the majority, this series of doses has converted the positive reactor into a negative one a month after the completion of the course, and subsequent tests at intervals of 6 and 12 months have shewn that the test has either remained negative, or, at most has become faintly positive.

In some probationers, however, this range of dosage has not sufficed to reverse the Dick test within a month or six weeks after the completion of the course.

## DISINFECTION.

Disinfection of rooms, bedding, and personal clothing is carried out where patients have suffered from diphtheria, enteric fever, puerperal fever, tuberculosis, and smallpox, and certain other diseases such as cancer when special request is made. This action is not taken now in respect of scarlet fever, but the inspector visits and requires a thorough cleansing of the premises, including the washing of personal and bed clothing.

By an arrangement made between the Public Libraries and Public Health Committees, library books which have been in contact with cases of infectious disease are collected and taken to the Disinfecting Station at Bacchus Road, where they are subjected to disinfection in a formalin chamber. Private libraries are also offered the alternative of disinfection of their books rather than of destruction.

The following table gives details of the work done during 1928 :—

|  |     |     |     |     |     |     |        |
|--|-----|-----|-----|-----|-----|-----|--------|
| Houses disinfected after diphtheria            | ... | ... | ... | ... | ... | ... | 1,835  |
| „ „ „ enteric fever                            | ... | ... | ... | ... | ... | ... | 20     |
| „ „ „ puerperal fever                          | ... | ... | ... | ... | ... | ... | 33     |
| „ „ „ smallpox                                 | ... | ... | ... | ... | ... | ... | 9      |
| „ „ „ tuberculosis                             | ... | ... | ... | ... | ... | ... | 2,080  |
| „ „ „ cancer                                   | ... | ... | ... | ... | ... | ... | 175    |
| „ „ „ miscellaneous diseases (by request)      | ... | ... | ... | ... | ... | ... | 247    |
| Beds disinfected                               | ... | ... | ... | ... | ... | ... | 14,369 |
| Miscellaneous articles of clothing and bedding | ... | ... | ... | ... | ... | ... | 20,073 |
| Library books disinfected (July—December)*     | ... | ... | ... | ... | ... | ... | 496    |

\*New procedure brought into effect in July, to replace destruction of library books.

## VII.—MATERNITY AND CHILD WELFARE.

### INFANT MORTALITY.

The Infant Mortality rates in Birmingham over a series of years are set out in the following table. It will be noted that the rate for 1928 was substantially lower than in any previous year and was as good as that of England and Wales.

#### INFANT MORTALITY RATE.

|         |     |     |     |     | Birmingham. |     | England and Wales. |
|---------|-----|-----|-----|-----|-------------|-----|--------------------|
| 1901-05 | ... | ... | ... | ... | 157         | ... | 138                |
| 1906-10 | ... | ... | ... | ... | 131         | ... | 117                |
| 1911-15 | ... | ... | ... | ... | 126         | ... | 110                |
| 1916-20 | ... | ... | ... | ... | 94          | ... | 91                 |
| 1921-25 | ... | ... | ... | ... | 80          | ... | 76                 |
| 1919    | ... | ... | ... | ... | 84          | ... | 89                 |
| 1920    | ... | ... | ... | ... | 83          | ... | 80                 |
| 1921    | ... | ... | ... | ... | 83          | ... | 83                 |
| 1922    | ... | ... | ... | ... | 86          | ... | 77                 |
| 1923    | ... | ... | ... | ... | 72          | ... | 69                 |
| 1924    | ... | ... | ... | ... | 83          | ... | 75                 |
| 1925    | ... | ... | ... | ... | 78          | ... | 75                 |
| 1926    | ... | ... | ... | ... | 73          | ... | 70                 |
| 1927    | ... | ... | ... | ... | 75          | ... | 69                 |
| 1928    | ... | ... | ... | ... | 65          | ... | 65                 |

#### DISTRIBUTION OF INFANT MORTALITY.

The appended table shows the infant mortality rate in each of the wards of the City in 1928. The average mortality in the groups of wards ten years ago is given for comparison.

|                 |   |                           |     |     |     |     |  |
|-----------------|---|---------------------------|-----|-----|-----|-----|--|
| Central Wards : | { | St. Pauls                 | ... | ... | ... | 71  | } Average :<br>In 1928—84.<br>In 1918—132. |
|                 |   | St. Mary's                | ... | ... | ... | 101 |  |
|                 |   | Duddeston and Nechells    | ... | ... | ... | 73  |  |
|                 |   | St. Bartholomew's         | ... | ... | ... | 89  |  |
|                 |   | St. Martin's and Deritend | ... | ... | ... | 84  |  |
|                 |   | Market Hall               | ... | ... | ... | 100 |  |
|                 |   | Ladywood                  | ... | ... | ... | 69  |  |
| Middle Ring :   | { | Lozells                   | ... | ... | ... | 63  | } Average :<br>In 1928—60.<br>In 1918—92.  |
|                 |   | Aston                     | ... | ... | ... | 57  |  |
|                 |   | Washwood Heath            | ... | ... | ... | 62  |  |
|                 |   | Saltley                   | ... | ... | ... | 71  |  |
|                 |   | Small Heath               | ... | ... | ... | 59  |  |
|                 |   | Sparkbrook                | ... | ... | ... | 56  |  |
|                 |   | Balsall Heath             | ... | ... | ... | 62  |  |
|                 |   | Edgbaston                 | ... | ... | ... | 46  |  |
|                 |   | Rotton Park               | ... | ... | ... | 75  |  |
|                 |   | All Saints                | ... | ... | ... | 46  |  |
| Outer Ring :    | { | Soho                      | ... | ... | ... | 74  | } Average :<br>In 1928—50.<br>In 1918—69.  |
|                 |   | Sandwell                  | ... | ... | ... | 68  |  |
|                 |   | Handsworth                | ... | ... | ... | 34  |  |
|                 |   | Perry Barr                | ... | ... | ... | 0   |  |
|                 |   | Erdington North           | ... | ... | ... | 62  |  |
|                 |   | Erdington South           | ... | ... | ... | 40  |  |
|                 |   | Yardley                   | ... | ... | ... | 43  |  |
|                 |   | Acocks Green              | ... | ... | ... | 49  |  |
|                 |   | Sparkhill                 | ... | ... | ... | 47  |  |
|                 |   | Moseley and Kings Heath   | ... | ... | ... | 41  |  |
|                 |   | Selly Oak                 | ... | ... | ... | 82  |  |
|                 |   | King's Norton             | ... | ... | ... | 54  |  |
|                 |   | Northfield                | ... | ... | ... | 46  |  |
|                 |   | Harborne                  | ... | ... | ... | 65  |  |

Thus the infant mortality in the central wards has decreased to the extent of 36 per cent., in the middle ring of 34 per cent., and in the outer ring of 27 per cent. of the respective rates ten years ago.

The slower fall in the outer ring may be associated with the outward movement of the population which has been a marked feature.

The distribution of the infant mortality in relation to cause of death and age at death is shown in the following table.

#### INFANTILE MORTALITY BY AGE AND CAUSE.

*Deaths from stated Causes in Weeks and Months under One Year of Age.*

| Cause of Death.                          | Weeks. |     |     |     | Total<br>under<br>One<br>Month. | Months. |     |     |     | Total<br>Deaths<br>under<br>One Year |
|--|--------|-----|-----|-----|---------------------------------|---------|-----|-----|-----|--------------------------------------|
|  | 0—     | 1—  | 2—  | 3—  |                                 | 1—      | 3—  | 6—  | 9—  |                                      |
| Measles ... ..                           | —      | —   | —   | —   | —                               | —       | —   | 4   | 9   | 13                                   |
| Scarlet Fever ... ..                     | —      | —   | —   | —   | —                               | —       | —   | —   | —   | —                                    |
| Whooping Cough ... ..                    | —      | —   | —   | —   | —                               | 14      | 18  | 19  | 24  | 75                                   |
| Diphtheria and Croup ... ..              | —      | —   | —   | —   | —                               | —       | —   | 1   | 1   | 2                                    |
| Influenza ... ..                         | —      | —   | —   | —   | —                               | 1       | 2   | —   | 1   | 4                                    |
| Tuberculous Meningitis ... ..            | —      | —   | —   | —   | —                               | 1       | 2   | 4   | 3   | 10                                   |
| Abdominal Tuberculosis ... ..            | —      | —   | —   | —   | —                               | —       | —   | —   | —   | —                                    |
| Other Tuberculous Diseases ... ..        | 1      | —   | —   | —   | 1                               | 1       | —   | 5   | 2   | 9                                    |
| Rickets ... ..                           | —      | —   | —   | —   | —                               | —       | —   | 1   | 2   | 3                                    |
| Syphilis ... ..                          | 1      | —   | 1   | 1   | 3                               | 4       | —   | —   | —   | 7                                    |
| Cerebro-Spinal Fever ... ..              | —      | —   | —   | —   | —                               | 1       | —   | 2   | —   | 3                                    |
| Meningitis (not Tuberculous) ... ..      | 1      | —   | —   | —   | 1                               | 2       | 4   | 3   | 1   | 11                                   |
| Convulsions ... ..                       | 4      | 3   | 2   | 1   | 10                              | 2       | 7   | 4   | —   | 23                                   |
| Bronchitis ... ..                        | 1      | 1   | —   | 2   | 4                               | 8       | 8   | 5   | 2   | 27                                   |
| Pneumonia (all forms) ... ..             | 4      | 3   | 3   | 1   | 11                              | 27      | 29  | 47  | 36  | 150                                  |
| Gastritis ... ..                         | —      | —   | 1   | —   | 1                               | 1       | —   | 2   | —   | 4                                    |
| Diarrhoea, Enteritis, etc. ... ..        | —      | —   | 2   | —   | 2                               | 34      | 52  | 33  | 18  | 139                                  |
| Congenital Malformations ... ..          | 35     | 12  | 4   | 6   | 57                              | 20      | 8   | 2   | —   | 87                                   |
| Premature Birth ... ..                   | 223    | 38  | 18  | 13  | 292                             | 33      | 2   | —   | —   | 327                                  |
| Atrophy, Debility and<br>Marasmus ... .. | 31     | 4   | 1   | —   | 36                              | 18      | 7   | 2   | 1   | 64                                   |
| Atelectasis ... ..                       | 27     | —   | 1   | —   | 28                              | —       | —   | —   | —   | 28                                   |
| Injury at Birth ... ..                   | 18     | 5   | 1   | 1   | 25                              | —       | —   | —   | —   | 25                                   |
| Neglect (under 3 months) ... ..          | 9      | —   | —   | —   | 9                               | —       | —   | —   | —   | 9                                    |
| Suffocation (overlying) ... ..           | 1      | 3   | 2   | 2   | 8                               | 8       | 3   | 1   | —   | 20                                   |
| Other Causes ... ..                      | 8      | 7   | 5   | 3   | 23                              | 5       | 15  | 15  | 19  | 77                                   |
| All Causes ... ..                        | 364    | 76  | 41  | 30  | 511                             | 180     | 157 | 150 | 119 | 1,117                                |
| Rate per 1,000 Births ... ..             | 21.1   | 4.4 | 2.4 | 1.7 | 29.7                            | 10.5    | 9.1 | 8.7 | 6.9 | 65                                   |

Taking the five years prior to 1928 (1923-1927) the neo-natal mortality, i.e., the mortality in the first four weeks of life, was 32.4 per 1,000. In 1928 it was 29.7 per 1,000, so that a notable improvement was to be observed.

In 1928 there were 595 stillbirths, while the deaths in the first week of life amounted to 364, and in the second week to 76. The next Table shows for each ward of the City the total number during the past year of babies who died within two weeks of birth.

| Ward.         |     |     |     | Deaths under<br>2 weeks. | Rate per<br>1,000 births. | Average 27.3 |
|---------------|-----|-----|-----|--------------------------|---------------------------|--------------|
| Central Wards | ... | ... | ... | 15                       | 20.5                      |              |
|               | ... | ... | ... | 25                       | 28.8                      |              |
|               | ... | ... | ... | 27                       | 27.7                      |              |
|               | ... | ... | ... | 18                       | 21.6                      |              |
|               | ... | ... | ... | 30                       | 31.8                      |              |
|               | ... | ... | ... | 12                       | 38.8                      |              |
|               | ... | ... | ... | 12                       | 22.2                      |              |

|             |     |     |                         |     |     |    |      |              |
|-------------|-----|-----|-------------------------|-----|-----|----|------|--------------|
| Middle Ring | ... | ... | Lozells                 | ... | ... | 13 | 24.9 | Average 22.6 |
|             |     |     | Aston                   | ... | ... | 19 | 24.3 |              |
|             |     |     | Washwood Heath          | ... | ... | 21 | 29.6 |              |
|             |     |     | Saltley                 | ... | ... | 23 | 32.0 |              |
|             |     |     | Small Heath             | ... | ... | 8  | 15.1 |              |
|             |     |     | Sparkbrook              | ... | ... | 12 | 22.4 |              |
|             |     |     | Balsall Heath           | ... | ... | 14 | 22.9 |              |
|             |     |     | Edgbaston               | ... | ... | 4  | 10.1 |              |
|             |     |     | Rotton Park             | ... | ... | 19 | 27.5 |              |
| Outer Ring  | ... | ... | All Saints              | ... | ... | 13 | 17.1 | Average 25.6 |
|             |     |     | Soho                    | ... | ... | 14 | 39.7 |              |
|             |     |     | Sandwell                | ... | ... | 7  | 29.8 |              |
|             |     |     | Handsworth              | ... | ... | 6  | 20.3 |              |
|             |     |     | Perry Barr              | ... | ... | 0  | —    |              |
|             |     |     | Erdington North         | ... | ... | 18 | 27.2 |              |
|             |     |     | Erdington South         | ... | ... | 8  | 22.7 |              |
|             |     |     | Yardley                 | ... | ... | 15 | 26.8 |              |
|             |     |     | Acocks Green            | ... | ... | 18 | 23.4 |              |
|             |     |     | Sparkhill               | ... | ... | 14 | 19.9 |              |
|             |     |     | Moseley and Kings Heath | ... | ... | 13 | 28.3 |              |
|             |     |     | Selly Oak               | ... | ... | 13 | 32.5 |              |
|             |     |     | Kings Norton            | ... | ... | 10 | 30.2 |              |
|             |     |     | Northfield              | ... | ... | 1  | 5.8  |              |
|             |     |     | Harborne                | ... | ... | 11 | 51.2 |              |

It is clear, in the first place, that not far short of one-half of the whole infant mortality occurs within the first fortnight after birth; and in the second place that there is no very substantial difference between any of the three areas of the City in its incidence. Social circumstances are not the main factor producing this large section of the infant mortality.

In the Annual Report for 1927, it was pointed out that the death-rate in the first week of life is exceedingly high, being about four times as great as in the week giving the next highest rate. It was also pointed out that in this first week the total infant mortality was, broadly speaking, as high in the residential suburban areas as in the central working class districts.

This year the enquiry into the local distribution of the infant mortality has been carried one step further. The mortality rates from four main groups of diseases have been calculated in groups of wards and are shown in the following table. In considering the figures it should be remembered that some of the rates have necessarily been calculated on a small number of deaths and are therefore subject to rather sudden fluctuations. The figures in brackets indicate the number of deaths in the five years in question, upon which the rates have been calculated.

#### ANNUAL DEATH-RATE PER 1,000 AT VARIOUS AGES UNDER ONE YEAR.

##### INFECTIOUS DISEASES.

|             |     |     | Central Wards. | Middle Ring. | Outer Ring. | City.*    |
|-------------|-----|-----|----------------|--------------|-------------|-----------|
| First week  | ... | ... | —              | —            | —           | —         |
| Second week | ... | ... | —              | —            | —           | —         |
| Third week  | ... | ... | —              | 1.6 (1)      | 2.1 (1)     | 1.2 (2)   |
| Fourth week | ... | ... | 1.8 (1)        | 6.5 (4)      | 2.1 (1)     | 3.7 (6)   |
| 1—3 months  | ... | ... | 4.3 (21)       | 4.7 (26)     | 3.8 (16)    | 4.3 (63)  |
| 3—6 months  | ... | ... | 5.2 (37)       | 4.3 (34)     | 2.5 (15)    | 4.1 (86)  |
| 6—9 months  | ... | ... | 9.6 (68)       | 3.6 (29)     | 2.5 (15)    | 5.3 (112) |
| 9—12 months | ... | ... | 14.3 (101)     | 8.0 (64)     | 4.1 (25)    | 9.0 (191) |

##### BRONCHITIS AND PNEUMONIA.

|             |     |     |            |            |           |            |
|-------------|-----|-----|------------|------------|-----------|------------|
| First week  | ... | ... | 16.2 (9)   | 9.6 (6)    | 8.3 (4)   | 11.4 (19)  |
| Second week | ... | ... | 18.2 (10)  | 25.8 (16)  | 21.1 (10) | 21.9 (36)  |
| Third week  | ... | ... | 43.6 (24)  | 22.8 (14)  | 10.6 (5)  | 26.3 (43)  |
| Fourth week | ... | ... | 23.8 (13)  | 24.4 (15)  | 10.6 (5)  | 20.2 (33)  |
| 1—3 months  | ... | ... | 25.9 (127) | 14.5 (80)  | 13.7 (58) | 18.2 (267) |
| 3—6 months  | ... | ... | 23.3 (165) | 12.0 (96)  | 4.7 (29)  | 13.7 (291) |
| 6—9 months  | ... | ... | 24.4 (173) | 14.1 (113) | 9.3 (57)  | 16.2 (343) |
| 9—12 months | ... | ... | 25.7 (182) | 15.3 (122) | 8.0 (49)  | 16.7 (353) |

## DIARRHŒA AND ENTERITIS.

|                    |      |       |      |      |      |      |      |       |
|--------------------|------|-------|------|------|------|------|------|-------|
| First week ... ..  | 1.8  | (1)   | 3.2  | (2)  | 4.2  | (2)  | 3.0  | (5)   |
| Second week ... .. | 7.3  | (4)   | 3.2  | (2)  | 8.4  | (4)  | 6.1  | (10)  |
| Third week ... ..  | 9.1  | (5)   | 11.4 | (7)  | 14.9 | (7)  | 11.6 | (19)  |
| Fourth week ... .. | 9.2  | (5)   | 4.9  | (3)  | 8.5  | (4)  | 8.0  | (13)  |
| 1—3 months ... ..  | 21.6 | (106) | 9.0  | (50) | 4.3  | (18) | 12.1 | (177) |
| 3—6 months ... ..  | 26.5 | (188) | 9.4  | (75) | 7.5  | (46) | 14.7 | (311) |
| 6—9 months ... ..  | 14.0 | (99)  | 5.4  | (43) | 3.4  | (21) | 7.8  | (165) |
| 9—12 months ... .. | 8.6  | (61)  | 3.1  | (25) | 2.0  | (12) | 4.7  | (100) |

## PREMATURE BIRTH, DEBILITY, ETC.

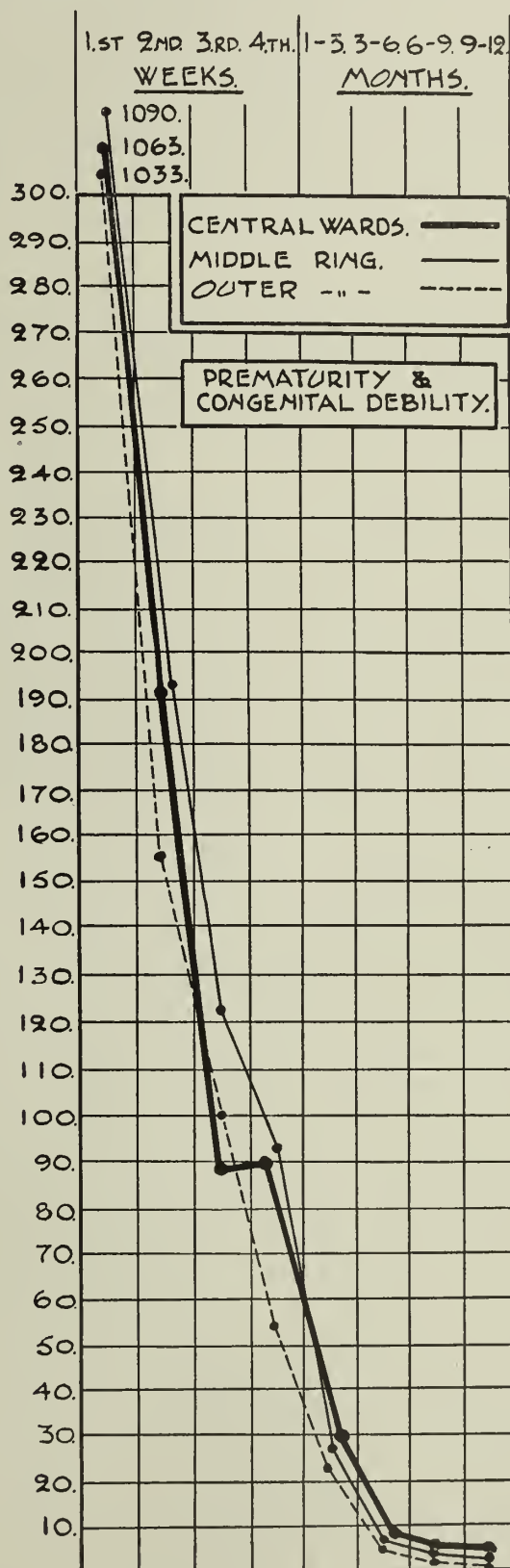
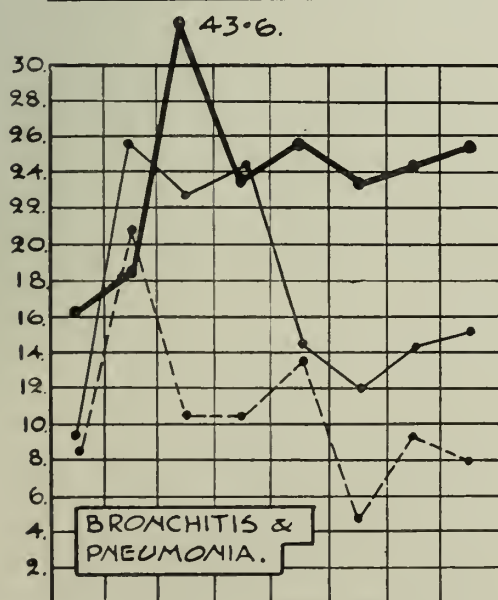
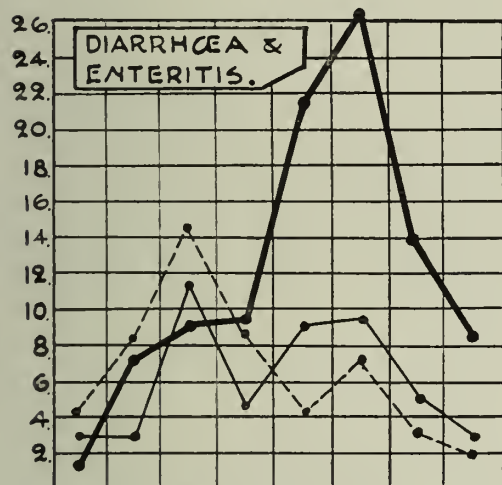
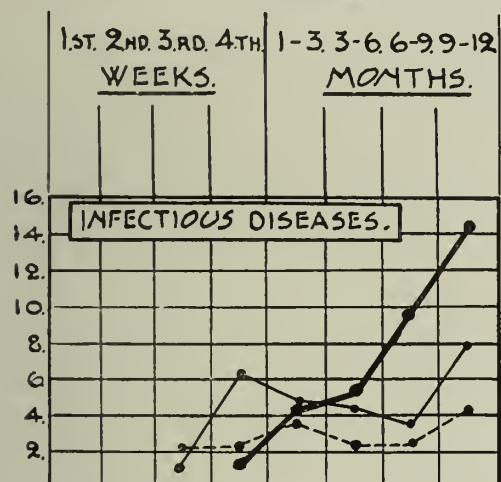
|                    | Central Wards. | Middle Ring. | Outer Ring. | City.        |
|--------------------|----------------|--------------|-------------|--------------|
| First week ... ..  | 1063† (590)    | 1090† (681)  | 1033† (496) | 1075† (1784) |
| Second week ... .. | 191 (105)      | 193 (120)    | 156 (74)    | 181 (298)    |
| Third week ... ..  | 89 (49)        | 122 (75)     | 100 (47)    | 105 (171)    |
| Fourth week ... .. | 90 (49)        | 93 (57)      | 55 (26)     | 82 (133)     |
| 1—3 months ... ..  | 30 (149)       | 27 (148)     | 23 (98)     | 27 (397)     |
| 3—6 months ... ..  | 8.2 (58)       | 6.0 (48)     | 5.1 (31)    | 6.5 (138)    |
| 6—9 months ... ..  | 3.7 (26)       | 1.5 (12)     | 1.0 (6)     | 2.1 (45)     |
| 9—12 months ... .. | 1.3 (9)        | 0.9 (7)      | 0.2 (1)     | 0.8 (18)     |

\*Including certain "not located" deaths for which no definite address could be obtained.

†These death-rates per 1,000 infants under 1 year of age are explained by the fact that the deaths in *the first week* are calculated as rates *spread over the whole year*. Were this high death-rate to continue, there would be no survivors left some time before the end of the year had been reached.

On the opposite page will be found a chart setting out in graphic form the death-rate among infants at various ages under one year from each of these four great grouped causes of infant deaths in the three zones of the City respectively.

# DEATH RATES PER 1,000 AT AGES UNDER 1 YEAR.



From the chart the following conclusions appear justified.

1. GENERAL. The infant mortality from each group of causes falls most heavily on the central wards during the later months of the first year of life.

2. INFECTIOUS DISEASES. The mortality is somewhat higher among infants in the middle ring during the 3rd and 4th weeks than among those in the central wards. At the same time the very small number of actual deaths from these diseases at such ages renders these conclusions dubious. During the later months of the first year of life the mortality is markedly higher in the central wards than in the remainder of the City, the incidence diminishing progressively as we pass from the centre to the residential periphery. The degree in which the incidence may be affected by the prevalence of infectious disease in the schools, however, renders any general conclusions open to serious error.

3. BRONCHITIS AND PNEUMONIA. Throughout the whole of the first year of life (except in the second week) the mortality is higher in the central wards than in the middle ring, and higher in the middle than in the outer ring of the City. In all areas its tendency is to be highest during the first four weeks; but in the central wards the mortality stays elevated throughout the whole of the remainder of the first year, while in the middle or outer rings it drops rapidly after the first month of life. The environmental conditions seem therefore to be of fundamental importance in this group of causes of infant deaths.

4. DIARRHŒA AND ENTERITIS. (a) In general the mortality is much higher in the central wards than elsewhere. (b) During the first three weeks it is higher in the outer ring than in the middle ring or in the central wards. In the first and third weeks it is slightly higher in the middle ring than in the central wards. In view of the unreliability of diagnosis of enteritis in young children, it is difficult to be certain that these differences are significant: in so far as they represent a real difference in favour of the central wards it may be related to a more established habit of breast-feeding in these wards in comparison with the outer residential areas, with greater protection therefore from illness due to food contamination. (c) The highest mortality in the early weeks is in the outer and to a less extent in the middle ring, but in the later months it occurs in the central wards. This again would be explained if there were a substantial difference in practice in breast-feeding in the several areas of the City, the diarrhœal death-rate being an indication of the dangers which beset the infant at the critical stage when breast feeding is replaced by the bottle, with all the accompanying risks of contamination by dust and dirt.

5. PREMATURE BIRTH, CONGENITAL DEBILITY, ETC. In this, by far the largest factor in the infant mortality, there is no very substantial difference to be seen between the three zones of the City during the early weeks. So far as any difference exists during the first four weeks it is to the advantage of the central wards and adverse to the middle ring. The influence of this group of causes of death wanes very rapidly after the first month. Thereafter it is more to be observed in the central wards than in the remainder of the City. As in the last Annual Report, we again find, with the substitution of the 1924-1928 figures for the 1923-1927 figures there used, that during the earliest weeks of life there is approximately as great a chance of survival, so far as premature birth and congenital debility are concerned, in the poorest as in the more residential areas; but that thereafter environment comes into play in these as in other causes of death, in accentuating their influence on the poorest, most dusty and most dirty portions of the City.

In the next table the infant mortality in Birmingham is shown as compared with that in other great towns.

#### INFANT MORTALITY IN OTHER TOWNS.

(Registrar General's Figures).

|                   | 1928. |
|-------------------|-------|
| Glasgow ... ..    | 107   |
| Birmingham ... .. | 65    |
| Liverpool ... ..  | 92    |
| Manchester ... .. | 90    |
| Sheffield ... ..  | 73    |
| Leeds ... ..      | 77    |
| Bristol ... ..    | 61    |
| Edinburgh ... ..  | 75    |

### INFANTILE DIARRHŒA AND ENTERITIS.

There were 161 deaths from diarrhœal disease under two years of age.

The deaths in previous years are shown in the next table.

|      |     |     |     | Deaths from Diarrhœa<br>and Enteritis.<br>Under 2 years. | Death-rate<br>per 1,000 births. | Days with Temp.<br>of 75° Fahr.<br>or over.* | Days with 0.01<br>or more inches of<br>Rain.* |
|------|-----|-----|-----|--|---------------------------------|--|---|
| 1916 | ... | ... | ... | 380  | 18.4                            | 14   | 36  |
| 1917 | ... | ... | ... | 266  | 15.0                            | 5  | 55  |
| 1918 | ... | ... | ... | 311  | 18.5                            | 13   | 54  |
| 1919 | ... | ... | ... | 191  | 9.9                             | 12   | 39  |
| 1920 | ... | ... | ... | 237  | 9.5                             | 0  | 53  |
| 1921 | ... | ... | ... | 367  | 16.6                            | 27   | 27  |
| 1922 | ... | ... | ... | 169  | 8.5                             | 0  | 55  |
| 1923 | ... | ... | ... | 207  | 10.9                            | 15   | 49  |
| 1924 | ... | ... | ... | 170  | 9.2                             | 2  | 63  |
| 1925 | ... | ... | ... | 201  | 11.3                            | 12   | 46  |
| 1926 | ... | ... | ... | 201  | 11.2                            | 13   | 36  |
| 1927 | ... | ... | ... | 198  | 11.5                            | 3  | 50  |
| 1928 | ... | ... | ... | 161  | 9.3                             | 14   | 30  |

\*In the third quarter of the year.

The diarrhœa rates in different areas in 1928 were as follows :—

|               |     |     |                        |
|---------------|-----|-----|------------------------|
| Central Wards | ... | ... | 17.7 per 1,000 births. |
| Middle Ring   | ... | ... | 6.7 „                  |
| Outer Ring    | ... | ... | 4.3 „                  |
| City          | ... | ... | 9.3 „                  |

The 1928 figure is the lowest ever recorded and in spite of a hot dry summer. The deaths in the Central Wards necessarily predominate.

### STILLBIRTHS.

There were 595 stillbirths reported against 521 in 1927. They were distributed over the groups of wards as shown below :—

#### PROPORTION OF STILLBIRTHS TO 1,000 BIRTHS.

|               |     |     |     | Macerated. | Non-macerated. | Not stated. | Total. |
|---------------|-----|-----|-----|------------|----------------|-------------|--------|
| Central Wards | ... | ... | ... | 6.3        | 18.6           | 7.8         | 32.7   |
| Middle Ring   | ... | ... | ... | 8.2        | 16.7           | 9.2         | 34.1   |
| Outer Ring    | ... | ... | ... | 8.5        | 16.1           | 9.3         | 33.9   |

Thus, as in the case of deaths during the earliest weeks of life from premature birth or from congenital debility, so in the case of deaths occurring before birth, differences in social circumstances as represented by the differences between the three zones of the City are not at any rate the main factor in causation.

### CHILD MORTALITY 1 TO 5 YEARS.

The deaths of children between 1 and 5 years old numbered 430, against 589 in 1927 and 570 in 1926.

The causes of death were as set out below. For comparative purposes the rates at the time of the most recent Census, namely, 1920-1922 are added. It will be noted that the death-rate last year was only half as high as the mean of the three years given for comparison; also that Respiratory Diseases, either alone or as a consequence of Measles and Whooping Cough account for a large part of the mortality.

|                          |     |     |     | Deaths<br>in 1928. | Death-rate<br>per 1,000 1928. | Average<br>death-rate 1920-22. |
|--------------------------|-----|-----|-----|--------------------|-------------------------------|--------------------------------|
| Measles                  | ... | ... | ... | 25                 | 0.39                          | 1.32                           |
| Whooping Cough           | ... | ... | ... | 84                 | 1.30                          | 1.74                           |
| Diphtheria               | ... | ... | ... | 24                 | 0.37                          | 0.87                           |
| Scarlet Fever            | ... | ... | ... | 3                  | 0.05                          | 0.50                           |
| Tuberculosis             | ... | ... | ... | 34                 | 0.53                          | 0.96                           |
| Bronchitis and Pneumonia | ... | ... | ... | 111                | 1.72                          | 4.32                           |
| Diarrhœa and Enteritis   | ... | ... | ... | 30                 | 0.47                          | 0.73                           |
| Burns                    | ... | ... | ... | 12                 | 0.19                          | 0.28                           |
| All other causes         | ... | ... | ... | 107                | 1.66                          | 2.38                           |
|                          |     |     |     | 430                | 6.67                          | 13.13                          |

# AN ENQUIRY INTO DEATHS FROM PNEUMONIA IN CHILDREN UNDER FIVE YEARS, 1928.

(Report by DR. ETHEL CASSIE).

## Introduction.

Since pneumonia plays a large part in infant and child mortality, it was felt that a careful enquiry into every case might reveal some facts of interest. The enquiry was made under medical direction, and home visits were paid, in every case, by a member of the staff, who is not only fully trained, but has had a wide experience of child welfare work and health visiting.

The total number of pneumonia deaths in children under five years, during 1928, was 255. In 12 cases, the family had left the district, and in three, the homes were considered too good to visit. These three families were the only ones in which the family income would be above £5 per week, i.e., in 1 per cent. of the total cases. This emphasises the fact, already realised from clinical experience, that the common type of pneumonia seen in young children is dependent to a great extent on environmental conditions.

TABLE I.

Group 1. Under one Month—15 deaths or 6 per cent.

| <i>Age Group.</i>       |                    |     |     |     | No. | <i>Type of Labour.</i>     |     |     |     |    |
|-------------------------|--------------------|-----|-----|-----|-----|----------------------------|-----|-----|-----|----|
| 1st week                | ...                | ... | ... | ... | 6   | Normal                     | ... | ... | ... | 13 |
| 2nd week                | ...                | ... | ... | ... | 4   | Precipitate                | ... | ... | ... | 1  |
| 3rd week                | ...                | ... | ... | ... | 2   | Prolonged                  | ... | ... | ... | 1  |
| 4th week                | ...                | ... | ... | ... | 3   |                            |     |     |     |    |
| <i>Type of Child.</i>   |                    |     |     |     |     | <i>How long ill.</i>       |     |     |     |    |
| Healthy                 | ...                | ... | ... | ... | 4   | 1—5 days                   | ... | ... | ... | 12 |
| Feeble                  | ...                | ... | ... | ... | 7   | 5—10 days                  | ... | ... | ... | 2  |
| Moderately healthy      | ...                | ... | ... | ... | 4   | 10—15 days                 | ... | ... | ... | 1  |
| Premature               | ...                | ... | ... | ... | 0   |                            |     |     |     |    |
| Full time               | ...                | ... | ... | ... | 15  |                            |     |     |     |    |
| <i>Suggestive of:—</i>  |                    |     |     |     |     | <i>Diet.</i>               |     |     |     |    |
| Pneumonia alone         | ...                | ... | ... | ... | 8   | Breast fed                 | ... | ... | ... | 14 |
| „ and Birth Injury      | ...                | ... | ... | ... | 2   | Artificially fed           | ... | ... | ... | 1  |
| „ Whooping Cough        | ...                | ... | ... | ... | 2   |                            |     |     |     |    |
| „ Congenital Debility   | ...                | ... | ... | ... | 2   |                            |     |     |     |    |
| „ Icterus Neonatorum    | ...                | ... | ... | ... | 1   |                            |     |     |     |    |
| <i>Parents' Health.</i> |                    |     |     |     |     | <i>Deaths in Quarters.</i> |     |     |     |    |
| Father.                 | Healthy            | ... | ... | ... | 11  | 1st Quarter                | ... | ... | ... | 5  |
|                         | Chronic ill-health | ... | ... | ... | 2   | 2nd „                      | ... | ... | ... | 2  |
|                         | Tuberculosis       | ... | ... | ... | 2   | 3rd „                      | ... | ... | ... | 2  |
|                         |                    |     |     |     |     | 4th „                      | ... | ... | ... | 6  |
| Mother.                 | Healthy            | ... | ... | ... | 11  |                            |     |     |     |    |
|                         | Chronic ill-health | ... | ... | ... | 4   |                            |     |     |     |    |

These cases represent only a small percentage of the total. The question arises in how many was death really due to pneumonia, and similarly how many pneumonia deaths at this period are otherwise classified. It is notoriously difficult to make a certain diagnosis of pneumonia in these young infants, though recent research emphasises the frequency of the condition. Probably this figure is an under estimate, but nevertheless, in no less than seven cases, pneumonia may have been the terminal event only. In two cases there was some suggestion of birth injury; in two cases, whooping cough was affecting the home, while three of the children were feeble, one suffering from icterus neonatorum. All the children were born at term, and 14 were breast fed. In two cases, the father had pulmonary tuberculosis.

This group undoubtedly presents problems other than those which arise at a later age. There is, however, one feature in this group which appears in common with the remainder—the high percentage of unhealthy parents.

TABLE II.

|  | Group 2.  |      | Group 3.  |      | Group 4. |      | Group 5. |      | Total. |      |
|--|-----------|------|-----------|------|----------|------|----------|------|--------|------|
| Age at Death .....   | 1—6 mos.  |      | 6—12 mos. |      | 1—2 yrs. |      | 2—5 yrs. |      |        |      |
| No. of Deaths .....  | 51        |      | 76        |      | 62       |      | 36       |      | 225    |      |
| Percentage of Total .....  | 21%       |      | 31%       |      | 25%      |      | 15%      |      |        |      |
| TYPE.  | No.       | %    | No.       | %    | No.      | %    | No.      | %    | No.    | %    |
| Healthy .....  | 29        | 56.9 | 39        | 51.3 | 21       | 33.9 | 12       | 33.3 | 101    | 44.9 |
| Feeble .....   | 12        | 23.5 | 6         | 7.9  | 7        | 11.3 | 2        | 5.6  | 27     | 12.0 |
| Ailing .....   | 10        | 19.6 | 41        | 40.8 | 34       | 54.8 | 22       | 61.1 | 97     | 43.1 |
| LENGTH OF ILLNESS.   |           |      |           |      |          |      |          |      |        |      |
| Under 1 week .....   | 25        | 49.0 | 18        | 23.7 | 17       | 27.4 | 15       | 41.7 | 75     | 33.3 |
| 1—2 weeks .....  | 20        | 39.2 | 29        | 38.1 | 27       | 43.5 | 8        | 22.2 | 84     | 37.3 |
| 2—3 weeks .....  | 1         | 1.9  | 12        | 15.8 | 6        | 9.7  | 3        | 8.3  | 22     | 9.8  |
| 3—4 weeks .....  | 3         | 5.8  | 11        | 14.5 | 3        | 4.8  | 1        | 2.8  | 18     | 8.0  |
| Over four weeks .....  | 2         | 3.9  | 6         | 7.9  | 9        | 14.5 | 9        | 25.0 | 26     | 11.5 |
| PREVIOUS HEALTH.   |           |      |           |      |          |      |          |      |        |      |
| Repeated Catarrh .....   | 5         | 9.8  | 5         | 6.6  | 14       | 22.6 | 17       | 47.2 | 41     | 18.2 |
| Repeated Bronchitis .....  | 9         | 17.6 | 34        | 44.7 | 29       | 46.8 | 23       | 63.9 | 95     | 42.2 |
| Severe Rickets .....   | —         | —    | 2         | 2.6  | 3        | 4.8  | 3        | 8.3  | 8      | 3.1  |
| PREVIOUS PNEUMONIA.  |           |      |           |      |          |      |          |      |        |      |
| 1 attack .....   | 1         | 1.9  | 5         | 6.6  | 8        | 12.2 | 13       | 36.1 | 27     | 12.0 |
| 2 attacks .....  | —         | —    | —         | —    | 4        | 6.4  | 4        | 11.1 | 8      | 3.1  |
| 3 attacks .....  | —         | —    | —         | —    | —        | —    | 2        | 5.5  | 2      | 0.8  |
| 4 attacks .....  | —         | —    | —         | —    | 1        | 1.6  | —        | —    | 1      | 0.4  |
| HOME SURROUNDINGS.   |           |      |           |      |          |      |          |      |        |      |
| Conducive to Rickets.<br>(Type of House, diet,<br>fresh air and light) | 31        | 60.8 | 44        | 57.0 | 36       | 58.0 | 22       | 61.0 | 133    | 56.6 |
| Back-to-back houses .....  | 6         | 11.7 | 10        | 13.2 | 16       | 25.7 | 7        | 19.4 | 39     | 17.3 |
| Overcrowding. (One bed-<br>room, four or more<br>persons) .....        | Not noted |      | 28        | 36.8 | 25       | 40.3 | 14       | 38.9 | —      | —    |
| DIET.  |           |      |           |      |          |      |          |      |        |      |
| Under 1 year.  |           |      |           |      |          |      |          |      |        |      |
| Breast Fed .....   | 26        | 51.0 | 28        | 36.7 |          |      |          |      | 54     | 42.5 |
| Breast and Artificially<br>Fed .....                                   | 9         | 17.6 | 13        | 17.1 |          |      |          |      | 22     | 17.0 |
| Artificially Fed .....   | 16        | 31.4 | 35        | 46.1 |          |      |          |      | 51     | 40.1 |
| Over 1 year.   |           |      |           |      |          |      |          |      |        |      |
| Ordinary (defective) .....   |           |      |           |      | 32       | 51.6 | 12       | 33.3 | 44     | 44.9 |
| Extremely deficient .....  |           |      |           |      | 17       | 27.4 | 15       | 41.6 | 32     | 32.6 |
| Good .....   |           |      |           |      | 13       | 20.9 | 9        | 25.0 | 22     | 22.4 |
| MANAGEMENT   |           |      |           |      |          |      |          |      |        |      |
| Good .....   | 19        | 37.2 | 22        | 28.9 | 20       | 32.2 | 13       | 36.1 | 74     | 32.9 |
| Bad .....  | 32        | 62.7 | 54        | 71.0 | 42       | 67.7 | 23       | 63.9 | 151    | 67.1 |
| Extreme Poverty .....  | 10        | 19.6 | 10        | 13.1 | 11       | 17.7 | 5        | 13.9 | 36     | 11.1 |

## GROUP II. AGES 1 TO 6 MONTHS. 51 CASES OR 21%.

The congenital conditions continue to affect children in this group. Twelve (23%) were feeble infants, 6 of whom (11%) were premature. Ten were ailing infants in whom pneumonia was probably a terminal event, leaving 29 (56%) healthy children. This is much what one would expect.

The rapid progress to a fatal termination is shown by 45 of the 51 children dying after less than 14 days of acute illness; 49% died within a week. This is characteristic of all the groups to a varying extent.

It is interesting to consider how early a tendency to catarrh manifests itself. Among these 51 children, five or 9.8% were said to have had frequent catarrhal attacks, and 9 or 17.6% had had several attacks of bronchitis. This must be considered a high percentage.

A careful enquiry was made as to conditions conducive to rickets—housing, diet, fresh air and light all being taken into consideration—and such conditions were considered to exist in 31 cases or 60%.

Breast-feeding had been practised in 26 cases or 50%, and while in 32 cases (62%) there was general bad management, there was acute poverty in only 10 cases or 19%.

#### GROUP III. AGES 6 TO 12 MONTHS. 76 CASES OR 31%.

In this group, one notes a very definite preponderance of deaths in the eighth month. It is the largest group, and in it 41 or 40% of the children were classed as "ailing." They were not feeble, but constantly having an illness of one kind or another. One notes with this that 34 or 44% suffered from repeated attacks of bronchitis, a point which emphasises the protracted and recurrent character of lung infections in young children. In this group the terminal illness is becoming more protracted, only 23% dying within a week. In 44 or 57% of the cases the home conditions were conducive to rickets. In 71% there was bad management, with acute poverty in 13%. The preponderance of bad home conditions is further emphasised by the notes on diet. In 28 cases the diet was the ordinary, somewhat defective, diet of the toddler in the poor home. In 35 cases or 46%, the diet was so defective as to amount to serious underfeeding, and in only 13 or 17% was the diet satisfactory.

#### GROUP IV. AGES 1 TO 2 YEARS. 62 CASES OR 25%.

The majority of deaths in this group occurred from the 12th to the 14th months (50%) and here again, 34 (54%) were ailing children, while 14 (22%) were classed as suffering from repeated catarrhs, and 29 (46%) from repeated attacks of bronchitis. The influence of bad surroundings remains marked, 58% living under conditions conducive to rickets, but the dietetic deficiencies are not so marked, only 6 (or 9%) having been classed as being seriously underfed.

#### GROUP V. AGES 2 TO 5 YEARS. 36 CASES OR 15%.

The increasing resistance to pulmonary disease is brought out by the low proportion in this group, although the period covered is so much greater. It will be seen that the percentage of cases occurring in the 3rd year is 7% as compared with 25% in the 2nd year and 55% in the first (excluding the first month). In the 4th year the cases were only 5.5%, and in the fifth year the percentage had fallen to 1.5%. In this group again there is a high percentage of ailing children (61%) and a high incidence of recurrent bronchitis and catarrh. The fatal attack was a second attack in 13 cases, and a third attack in four, and a fourth attack in two. In 52% of these older children then, there was a definite history of previous attacks of pneumonia, in addition to repeated attacks of bronchitis (64%) and catarrhs (47%). In 22 (61%), the home conditions were bad, but in only two cases was the diet very insufficient.

Considering all the groups together (Table II.) certain definite facts emerge. The most dangerous age period for pneumonia is from one to 14 months. The increasing percentage of ailing children among the older groups, with a high percentage for recurring pneumonia and bronchitis, appears to emphasise the probability of infection at a very early age, and its continuance with quiescent periods till either a fatal attack supervenes, or the child is restored to health. Clinical observations confirm this aspect of pneumonia in young children, which is commonly of the broncho-pneumonic type peculiar to the age period.

It will be noted that in 56% of the cases the home surroundings were definitely bad, but there was not much severe rickets. The very defective diet in a high percentage of the cases suggests not only a deficiency in the quantitative nutritional factors but also a vitamin deficiency, and in this relation, Mellanby's recent work on vitamin "A" and its association with resistance to infection cannot be ignored. It will be noted that the number of cases where the home management was bad is in excess of those in which the surroundings and diet were defective, though it includes these. This shows the continued need for educational effort.

TABLE III.

|   | GROUP 2. |      | GROUP 3. |      | GROUP 4. |      | GROUP 5. |      | TOTAL. |      |
|---|----------|------|----------|------|----------|------|----------|------|--------|------|
|   | No.      | %    | No.      | %    | No.      | %    | No.      | %    | No.    | %    |
| PARENTS' HEALTH.  |          |      |          |      |          |      |          |      |        |      |
| FATHER: Healthy .....   | 43       | 86.3 | 55       | 76.3 | 38       | 61.3 | 23       | 63.8 | 159    | 70.7 |
| Chronic ill-health .....  | 4        | 7.8  | 6        | 7.9  | 9        | 10.4 | 4        | 11.1 | 23     | 10.2 |
| T.B. ....   | 2        | 3.9  | 8        | 10.5 | 3        | 4.8  | 2        | 5.5  | 15     | 6.7  |
| Chr. Bronchitis .....   | 2        | 3.9  | 7        | 9.2  | 12       | 19.3 | 7        | 19.4 | 28     | 12.0 |
| MOTHER: Healthy .....   | 37       | 70.6 | 56       | 73.7 | 46       | 74.2 | 26       | 72.2 | 165    | 73.3 |
| Chronic ill-health .....  | 5        | 9.8  | 9        | 11.8 | 7        | 11.3 | 3        | 8.3  | 24     | 9.2  |
| T.B. ....   | 3        | 5.8  | 4        | 5.1  | 2        | 3.2  | 3        | 8.3  | 12     | 5.2  |
| Chr. Bronchitis .....   | 6        | 11.8 | 7        | 9.2  | 7        | 11.3 | 4        | 11.1 | 24     | 9.2  |
| T.B. CONTACTS .....   | —        | —    | 4        | 5.2  | —        | —    | 3        | 8.6  | 7      | 3.1  |
| COMPLICATING ILLNESS.   |          |      |          |      |          |      |          |      |        |      |
| Whooping Cough .....  | 5        | —    | 7        | —    | 5        | —    | —        | —    | 28     | 12.4 |
| Measles .....   | —        | —    | 2        | —    | —        | —    | —        | —    |        |      |
| Acute Enteritis .....   | —        | —    | —        | —    | 1        | —    | —        | —    |        |      |
| Tuberculosis .....  | —        | —    | 2        | —    | —        | —    | —        | —    |        |      |
| Pyloric Stenosis or Spasm .....                                       | 2        | —    | —        | —    | —        | —    | —        | —    |        |      |
| Chronic ill-health, with terminal pneumonia .....                     | 1        | —    | —        | —    | —        | —    | —        | —    |        |      |
| Congenital debility, with sudden collapse .....                       | 2        | —    | —        | —    | —        | —    | —        | —    |        |      |
| Syphilis .....  | 1        | —    | —        | —    | —        | —    | —        | —    |        |      |
| TREATED IN HOSPITAL .....   | 28       | 54.9 | 34       | 44.7 | 34       | 54.8 | 27       | 75.0 | 123    | 54.2 |
| Late Admissions .....   | 9        | 17.6 | 9        | 11.8 | 9        | 14.5 | 3        | 8.6  | 30     | 13.3 |
| HOME TREATMENT (including early medical attention, diet and nursing). |          |      |          |      |          |      |          |      |        |      |
| Adequate .....  | 20       | 39.2 | 30       | 39.5 | 22       | 35.5 | 17       | 47.3 | 89     | 39.6 |
| Inadequate .....  | 31       | 60.8 | 46       | 60.5 | 40       | 64.5 | 19       | 52.7 | 136    | 60.4 |

This table shows several interesting points of which the most important is the extremely high percentage of tuberculosis among the parents: 6% of the fathers had pulmonary tuberculosis and 5% of the mothers, giving a total of 11% among the parents. In addition, there were 3% of cases in which the child was in contact with a case of pulmonary tuberculosis apart from the parents. The amount of pulmonary tuberculosis in the adult population of Birmingham is in the neighbourhood of 1%, and in a random sample of 500 working class families 2 per cent.; and when this figure is contrasted with the 14% contacts in these pneumonia deaths, one is forced to consider the possibility of a proportion of these cases being tuberculous broncho-pneumonia. At the same time, it must be recognised that in these homes there is frequently a greater degree of poverty, and where the mother is affected, her poor health must react on the management of the home. In this connection, the high percentage of chronic bronchitis among the parents must not be overlooked, no less than 21% of the cases having one or other parent affected. The question of whether a proportion of these cases are chronic pulmonary tuberculosis undoubtedly arises. The extremely low resistance to tuberculosis in infancy is clearly recognised, while the difficulty of diagnosis before death is extreme; frequently a post mortem alone can give any certainty. At the same time, the occurrence of pulmonary tuberculosis in young infants apart from direct human infection is rare.

The prevalence of chronic ill-health (including chronic bronchitis) among the parents in the households of pneumonia cases varied from 16 to 22%; this may be contrasted with the corresponding rates in 500 working-class families taken at random, where the incidence of chronic ill-health was 12%. Evidently a pronounced prominence of chronic ill-health in the parents is to be found in the households in which pneumonia occurred.

The complicating illnesses suggest that in a certain number of the cases pneumonia was simply the terminal event. A majority of the cases, over 54%, were finally admitted to hospital, but of the 123 admitted, 30 died within 48 hours of admission.

In the group placed under "home treatment," all those who went to hospital within a week of the onset, are excluded. By inadequate treatment is meant delay in obtaining medical assistance, very defective home nursing and diet. It will be seen that 135 (or 60.5%) received inadequate treatment.

TABLE IV. DEATHS IN EACH QUARTER OF THE YEAR.

| Total       | Under 1<br>month.<br>15 | 1—6<br>months.<br>51 | 6—12<br>months.<br>76 | 1—2<br>years.<br>62 | 2—5<br>years.<br>36 | Total.    | Mean<br>Temp. | Hours<br>of<br>Sunlight. |
|-------------|-------------------------|----------------------|-----------------------|---------------------|---------------------|-----------|---------------|--------------------------|
| 1st Quarter | 5<br>33.3%              | 17<br>25.5%          | 40<br>52.6%           | 22<br>38.6%         | 11<br>30.5%         | 90<br>40% | 41.8°         | 170.4                    |
| 2nd Quarter | 2<br>13.3%              | 12<br>25.5 %         | 17<br>25.0%           | 21<br>32.2%         | 7<br>25.0%          | 57<br>25% | 51.1°         | 422.5                    |
| 3rd Quarter | 2<br>13.3%              | 11<br>23.2%          | 7<br>9.2%             | 11<br>14.5%         | 7<br>16.6%          | 36<br>16% | 58.1°         | 583.4                    |
| 4th Quarter | 6<br>40.0%              | 11<br>25.5%          | 12<br>13.1%           | 8<br>14.5%          | 11<br>27.8%         | 42<br>18% | 44.0°         | 182.7                    |

The highest seasonal incidence of the deaths from pneumonia (40%) occurs in the first quarter, the coldest time of the year with the least sunshine. The death-rate in the 2nd quarter however, is higher than in the 4th, in spite of a much higher temperature and more sunshine. The most marked seasonal difference is seen from 6—12 months, when 40 of the 76 children died in the first quarter. This suggests that rickets plays a part, since this is the age of its highest incidence, though it may escape diagnosis till a later age, when the deformities are noticed.

#### Conclusion.

The importance of the environmental factor in the pneumonias of childhood is well brought out. The recurrent character of the condition, and its association with a catarrhal and bronchitic tendency emphasises the importance of prolonged convalescent treatment, and measures calculated to increase resistance to such infections. The danger to young children in homes where there is pulmonary tuberculosis, is well known, but the high incidence of bad health in the parents of this group, calls for consideration. There can be no question that treatment is only too frequently quite inadequate, and the provision of beds for these cases is required. Even when beds are available, the children are sent home directly the acute stage is past, and the likelihood of recurrence and of a supervening chronicity is thereby increased.

#### MATERNITY AND CHILD WELFARE SCHEME.

(Report by DR. ETHEL CASSIE,

Assistant Medical Officer of Health for Maternity and Child Welfare).

#### CHILD WELFARE CENTRES.

There are now 26 Child Welfare Centres, the 26th Centre being a Weighing Centre in Hall Green, conducted by a Voluntary Committee. It is proposed to open very shortly a fully staffed Centre in a cottage in this district pending replacement by a new Municipal Centre in Acocks Green. The two large housing estates in this district are in urgent need of a suitable Child Welfare Centre. Similarly, the small Centre opened last year in the Wesleyan Chapel, Wheelwright Road, Tyburn, will shortly be replaced by a new Municipal Centre in Tyburn Road, Bromford. Here there are three large housing estates to be served. The need for other such Centres is obvious, and is being taken into consideration.

Details of the work of the Centres are given in the table on page 105. The table given below, shows the attendance of children at the Centres in different districts, in two age groups (children born in 1924, 1925 and 1926 and children born in 1927 and 1928), and also the attendance of the expectant mothers with the percentage attendance based on the births in the area.

## ATTENDANCES AT CENTRES.

No. of Children in Areas and No. attending Centre in Year Groups.

| Centres.            | Children born in 1924-26. |                      |             | Children born in 1927-28. |                      |             | 1928.                                 |              |
|---------------------|---------------------------|----------------------|-------------|---------------------------|----------------------|-------------|---------------------------------------|--------------|
|                     | Number<br>in Area.        | Number<br>Attending. | Percentage. | Number<br>in Area.        | Number<br>Attending. | Percentage. | Ante natal cases<br>attending.<br>No. | Percentage.* |
| 1. Aston St.        | 1525                      | 495                  | 32          | 1196                      | 741                  | 62          | 312                                   | 50           |
| 2. Bloomsbury St.   | 2339                      | 438                  | 19          | 1653                      | 833                  | 50          | 542                                   | 65           |
| 3. Bromford         | 562                       | 82                   | 15          | 410                       | 198                  | 48          | 107                                   | 59           |
| 4. Carnegie         | 2171                      | 944                  | 44          | 1613                      | 1426                 | 88          | 464                                   | 56           |
| 5. Erdington        | 740                       | 317                  | 43          | 616                       | 442                  | 72          | 156                                   | 46           |
| 6. Floodgate St.    | 1107                      | 167                  | 15          | 762                       | 441                  | 58          | 266                                   | 71           |
| 7. Greet            | 1948                      | 420                  | 22          | 1564                      | 788                  | 50          | 408                                   | 47           |
| 8. Hope Street      | 2237                      | 415                  | 19          | 1697                      | 817                  | 48          | 216                                   | 24           |
| 9. Handsworth       | 1006                      | 264                  | 26          | 828                       | 486                  | 59          | 138                                   | 32           |
| 10. Hay Mills       | 1978                      | 387                  | 20          | 1292                      | 714                  | 55          | 298                                   | 45           |
| 11. Irving Street   | 1345                      | 356                  | 26          | 990                       | 580                  | 58          | 122                                   | 24           |
| 12. Kings Heath     | 1756                      | 320                  | 18          | 1121                      | 588                  | 52          | 205                                   | 36           |
| 13. Lichfield Road  | 2292                      | 752                  | 33          | 1905                      | 1228                 | 65          | 485                                   | 50           |
| 14. Landsdowne St.  | 1742                      | 365                  | 21          | 1241                      | 633                  | 51          | 203                                   | 31           |
| 15. Northfield      | 197                       | 86                   | 44          | 333                       | 211                  | 63          | 68                                    | 40           |
| 16. Perry Common    | 923                       | 289                  | 31          | 515                       | 344                  | 67          | 155                                   | 64           |
| 17. Smith Street    | 2319                      | 488                  | 21          | 1652                      | 856                  | 52          | 455                                   | 51           |
| 18. Selly Oak       | 881                       | 129                  | 15          | 683                       | 279                  | 41          | 79                                    | 23           |
| 19. Stratford Rd.   | 1985                      | 375                  | 19          | 1541                      | 829                  | 54          | 229                                   | 28           |
| 20. Stirchley       | 1032                      | 249                  | 24          | 752                       | 457                  | 61          | 162                                   | 46           |
| 21. Trinity Road    | 1008                      | 364                  | 36          | 801                       | 677                  | 85          | 196                                   | 45           |
| 22. St. Vincent St. | 1826                      | 351                  | 19          | 1256                      | 694                  | 55          | 125                                   | 19           |
| 23. Washwood Hth.   | 2435                      | 567                  | 23          | 1746                      | 892                  | 51          | 356                                   | 39           |
| 24. Wright St.      | 2050                      | 557                  | 27          | 1617                      | 853                  | 53          | 291                                   | 34           |
| 25. Harborne        | 377                       | 200                  | 53          | 293                       | 248                  | 85          | 60                                    | 39           |
|                     | 37781                     | 9377                 | 25          | 28077                     | 16255                | 58          | 6098                                  | 42           |

\*Percentage of mothers attending the Ante-natal Clinics, based on the total births in the area, of a social class suitable for attendance at a Welfare Centre and for home visiting.

It will be seen that there is no clear-cut relation between the character of the area and the percentage attendance of the children. Obviously there are numerous factors affecting the attendance at any given Centre. Apart from this, the table indicates what may be fairly regarded as a good level of attendance of the younger children and a proportionately rather less complete attendance of the older ones.

The percentage attendance of ante-natal cases is on the whole very good, the best results being obtained in Floodgate Street and Bloomsbury Street areas—71% and 65% respectively. The low percentage in the Irving Street, Hope Street, St. Vincent Street and Selly Oak areas, is due to the proximity of the Queen's Hospital and Selly Oak Hospital, both of which have large ante-natal clinics. There has been a large increase in this work, the necessary extension of which was foreshadowed last year.

## THE " WALKER " MOTHERCRAFT SHIELD COMPETITION.

The " Walker " Shield given by Mrs. Sydney Walker for annual competition among the Birmingham Welfare Centres, was won for 1927, by the Carnegie Institute, and was presented by Mrs. Walker on March 7th, 1928.

It was decided to alter the period of the competition for 1928, and to arrange for the Shield to be presented in April, 1929, the period being from March, 1928, to March, 1929. The details of the competition will be reported next year.

## VOLUNTARY COMMITTEES.

The majority of the Child Welfare Centres have the assistance of voluntary workers, and at the following Centres, Voluntary Committees have been formed:—

|                     |                     |
|---------------------|---------------------|
| Aston Street.       | Kings Heath.        |
| Carnegie Institute. | Lichfield Road.     |
| Erdington.          | Northfield.         |
| Floodgate Street.   | St. Vincent Street. |
| Greet.              | Selly Oak.          |
| Handsworth.         | Stirchley.          |
| Hope Street.        | Stratford Road.     |

This assistance is much appreciated and is of the greatest value to the Centres. In fact, at some of the Centres it would be almost impossible to carry out the work satisfactorily without such co-operation. Voluntary workers undertake the clerical work, assist generally in the work of the Centre, and in addition collect funds to help necessitous cases and organise social meetings for the mothers.

A proportion of the Centres have Mothers' Committees, viz.:—

|                     |                     |
|---------------------|---------------------|
| Bloomsbury Street.  | Perry Common.       |
| Carnegie Institute. | St. Vincent Street. |
| Erdington.          | Stirchley.          |
| Handsworth.         | Stratford Road.     |
| Hay Mills.          | Trinity Road.       |
| Hope Street.        | Wright Street.      |
| Irving Street.      |                     |

These Committees give active help in many directions.

Fathers' Committees have been formed at four Centres, viz.:—

|                |                   |
|----------------|-------------------|
| Hope Street.   | Lansdowne Street. |
| Irving Street. | Trinity Road.     |

The help of the fathers is always welcomed, and it is hoped to increase their co-operation in the work of the Centres. Many have taken a great interest in the "Walker" Shield Competition, and a very fine exhibition of fathers' work has been arranged on each occasion.

## THE CARNEGIE INFANT WELFARE INSTITUTE.

During the year 1928, the work of the Carnegie Institute, whilst adhering to the lines followed in former years, has continued to expand in volume and variety. The work falls into three categories:—

- (1) The Child Welfare Centre.
- (2) The Special Clinics.
- (3) The Observation Ward.

## 1. THE CHILD WELFARE CENTRE.

The Institute is now serving a very large area with a child population under five years of 3,793. The percentage attendance of these children at the Centre during the year was 62%. Of the children born in 1927 and 1928, 88% attended. These figures can be regarded as very satisfactory, considering the type of area. The total attendances at the Centre remain the highest in the City, showing a satisfactory regularity of attendance. During the year, the Infant Consultations were increased from four to five per week; the Ante-natal Clinics still number two per week.

|   |                   |     |                |     |              |
|---|-------------------|-----|----------------|-----|--------------|
| CONSULTATIONS.                            | No. held—Children | ... | ...            | 234 |              |
|   | Mothers           | ... | ...            | 96  |              |
| Attendances—                              |                   |     |                |     |              |
| Infants under 1 year                      | ...               | ... | Seen by Doctor | ... | 3,579        |
|   |                   |     | Seen by Nurse  | ... | 6,025        |
| Children 1—5 years                        | ...               | ... | Seen by Doctor | ... | 3,801        |
|   |                   |     | Seen by Nurse  | ... | 3,367        |
|   |                   |     |                |     | Total 16,772 |
| Mothers—ante-natal                        | ...               | ... | No. seen       | ... | 482          |
|   |                   |     | Attendances    | ... | 1,155        |
| post natal                                | ...               | ... | No seen        | ... | 55           |
|   |                   |     | Attendances    | ... | 80           |
| Average attendance per clinic—13 mothers. |                   |     |                |     |              |

|  | Aston St. | Bloomsbury St. | Carnegie Institute. | Erdington. | Floodgate St. | Greet. | Handsworth. | Harborne. | Hay Mills. | Hope St. | Irving St. | King's Heath. | Lansdowne St. | Lichfield Rd. | Northfield. | Perry Common. | Pype Hayes. | St. Vincent St. | Selly Oak. | Smith St. | Stirchley | Stratford Rd. | Trinity Road. | Washwood Heath Rd. | Wright St. | Total. |
|--|-----------|----------------|---------------------|------------|---------------|--------|-------------|-----------|------------|----------|------------|---------------|---------------|---------------|-------------|---------------|-------------|-----------------|------------|-----------|-----------|---------------|---------------|--------------------|------------|--------|
| Infants and Children :—                  |           |                |                     |            |               |        |             |           |            |          |            |               |               |               |             |               |             |                 |            |           |           |               |               |                    |            |        |
| Births (and stillbirths) reported ... .. | 737       | 879            | 1142                | 388        | 463           | 887    | 491         | 220       | 725        | 874      | 585        | 699           | 767           | 998           | 164         | 365           | 243         | 706             | 389        | 877       | 365       | 1104          | 531           | 969                | 995        | 16561  |
| Primary visits ... ..                    | 638       | 850            | 988                 | 327        | 435           | 865    | 461         | 200       | 758        | 920      | 573        | 668           | 718           | 942           | 153         | 399           | 225         | 721             | 341        | 1001      | 425       | 1013          | 574           | 1014               | 975        | 16186  |
| Re-visits (infants and children) ... ..  | 11687     | 15590          | 15710               | 3160       | 7706          | 11416  | 7842        | 3943      | 11748      | 16211    | 11089      | 9455          | 11509         | 14140         | 2431        | 6766          | 3762        | 14668           | 4825       | 17065     | 6615      | 13633         | 6300          | 13439              | 15318      | 256026 |
| Total visits & revisits                  | 12325     | 16440          | 16698               | 3487       | 8141          | 12281  | 8303        | 4143      | 12506      | 17131    | 11662      | 10123         | 12227         | 15082         | 2584        | 7165          | 3987        | 15389           | 5166       | 18066     | 7040      | 14646         | 6874          | 14453              | 16293      | 272212 |
| Mothers :—                               |           |                |                     |            |               |        |             |           |            |          |            |               |               |               |             |               |             |                 |            |           |           |               |               |                    |            |        |
| Primary visits ... ..                    | 184       | 131            | 207                 | 30         | 65            | 195    | 102         | 66        | 101        | 134      | 167        | 66            | 237           | 142           | 16          | 111           | 5           | 80              | 41         | 72        | 57        | 102           | 56            | 214                | 215        | 2796   |
| Re-visits ... ..                         | 303       | 353            | 366                 | 29         | 80            | 197    | 17          | 156       | 268        | 148      | 190        | 63            | 308           | 103           | 48          | 191           | 36          | 89              | 67         | 199       | 49        | 124           | 57            | 173                | 279        | 3893   |
| Total visits & re-visits                 | 487       | 484            | 573                 | 59         | 145           | 392    | 119         | 222       | 369        | 282      | 357        | 129           | 545           | 245           | 64          | 302           | 41          | 169             | 108        | 271       | 106       | 226           | 113           | 387                | 494        | 6689   |
| Children's Consultations :               |           |                |                     |            |               |        |             |           |            |          |            |               |               |               |             |               |             |                 |            |           |           |               |               |                    |            |        |
| Number held ... ..                       | 146       | 146            | 234                 | 98         | 99            | 98     | 98          | 96        | 145        | 104      | 98         | 98            | 147           | 192           | 48          | 98            | 50          | 146             | 50         | 146       | 98        | 194           | 129           | 196                | 148        | 3102   |
| Fresh children attend'g                  | 666       | 671            | 2227                | 347        | 385           | 752    | 439         | 196       | 703        | 663      | 448        | 602           | 551           | 1064          | 133         | 341           | 289         | 540             | 184        | 680       | 404       | 693           | 484           | 806                | 767        | 15035  |
| Total attendances ... ..                 | 7418      | 6147           | 16754               | 5386       | 3969          | 5466   | 6321        | 3373      | 7367       | 5679     | 4240       | 4605          | 7228          | 12987         | 1551        | 3946          | 2417        | 5632            | 2251       | 8214      | 4860      | 7589          | 5808          | 8930               | 7467       | 155605 |
| Number seen by Doctor                    | 3738      | 2674           | 7336                | 2441       | 1366          | 2611   | 2153        | 1683      | 3405       | 2317     | 2232       | 1818          | 3580          | 5021          | 1210        | 2222          | 1080        | 2717            | 1356       | 3153      | 2279      | 3481          | 2991          | 3694               | 4546       | 71103  |
| Mothers' Consultations :                 |           |                |                     |            |               |        |             |           |            |          |            |               |               |               |             |               |             |                 |            |           |           |               |               |                    |            |        |
| Number held ... ..                       | 48        | 96             | 95                  | 48         | 48            | 81     | 50          | 21        | 50         | 48       | 16         | 50            | 50            | 50            | 23          | 48            | 23          | 48              | 23         | 100       | 48        | 48            | 48            | 96                 | 48         | 1304   |
| Fresh mothers attend'g                   |           |                |                     |            |               |        |             |           |            |          |            |               |               |               |             |               |             |                 |            |           |           |               |               |                    |            |        |
| Ante-Natal ... ..                        | 312       | 542            | 464                 | 156        | 266           | 408    | 138         | 60        | 298        | 216      | 122        | 205           | 203           | 485           | 68          | 155           | 107         | 125             | 79         | 455       | 162       | 229           | 196           | 356                | 291        | 6098   |
| Post-Natal ... ..                        | 9         | 15             | 53                  | 33         | 6             | 43     | 20          | 13        | 20         | 6        | 3          | 2             | 22            | 90            | 5           | 21            | 10          | 41              | 2          | 29        | 44        | 10            | 41            | 70                 | 6          | 614    |
| Total attendances ... ..                 | 723       | 1154           | 1203                | 598        | 606           | 1283   | 411         | 179       | 686        | 497      | 202        | 491           | 531           | 1053          | 197         | 559           | 272         | 431             | 234        | 1083      | 613       | 565           | 626           | 955                | 651        | 15803  |
| Attendance at :—                         |           |                |                     |            |               |        |             |           |            |          |            |               |               |               |             |               |             |                 |            |           |           |               |               |                    |            |        |
| Sewing classes ... ..                    | 819       | 562            | 654                 | 520        | 694           | 766    | 768         | 305       | 1415       | 515      | 523        | 452           | 545           | 497           | 236         | 410           | —           | 87              | 530        | 734       | 678       | 380           | 678           | 228                | 600        | 13596  |
| Cookery classes ... ..                   | 58        | —              | 431                 | —          | 143           | —      | —           | —         | —          | —        | —          | —             | —             | —             | 138         | —             | —           | 69              | —          | 570       | 558       | 634           | —             | —                  | —          | 2601   |
| Health Talks ... ..                      | 3827      | 667            | 6993                | 1387       | 953           | 2356   | 2398        | 294       | 2418       | 1153     | 1109       | 1233          | 2854          | 1376          | 317         | 1305          | 104         | 1428            | 49         | 1293      | 2208      | 1709          | 459           | 1056               | 1568       | 40514  |

\*52 weeks.

There were not many notable abnormalities in the cases seen at the Ante-natal Clinic during 1928, but the following may be mentioned :—

(1) *Abnormal Pelvic Measurements.*

(a) Flat Pelvis.

|   |     |     |     |     |     |           |
|---|-----|-----|-----|-----|-----|-----------|
| (1) Ext. Conjugate 7-in. or over                            | ... | ... | ... | ... | ... | 33 cases. |
| (2) Ext. Conjugate under 7-in.                              | ... | ... | ... | ... | ... | 8 „       |
| (3) Pelves which were <i>flat</i> but <i>not</i> contracted | ... | ... | ... | ... | ... | 8 „       |

(b) Small Round Pelvis.

|  |     |     |     |     |     |           |
|--|-----|-----|-----|-----|-----|-----------|
| (1) Ext. Conjugate 7-in. or over                                 | ... | ... | ... | ... | ... | 46 cases. |
| (2) Ext. Conjugate under 7-in.                                   | ... | ... | ... | ... | ... | 14 „      |
| (3) Pelves which were “ <i>round</i> ” but <i>not</i> contracted | ... | ... | ... | ... | ... | 6 „       |

(c) Justo Major Pelvis

|     |     |     |     |     |     |      |
|-----|-----|-----|-----|-----|-----|------|
| ... | ... | ... | ... | ... | ... | 47 „ |
|-----|-----|-----|-----|-----|-----|------|

This gives a percentage of 9.75 cases with pelvic measurements above normal in the 482 new ante-natal cases, and bears out the comment made in the corresponding report on the 1926 figures of the larger number of women with pelves above the average size in these days of more hygienic habits and dress.

(2) *Other Abnormalities.*

|  |     |     |     |     |     |                |
|--|-----|-----|-----|-----|-----|----------------|
| Breech presentation  | ... | ... | ... | ... | ... | 3              |
| Retroverted gravid uterus                                      | ... | ... | ... | ... | ... | 3              |
| Threatened abortion  | ... | ... | ... | ... | ... | 6              |
| Abortion inevitable, because of retroversion                   | ... | ... | ... | ... | ... | 1              |
| Albuminuria  | ... | ... | ... | ... | ... | 5              |
| Edema without albuminuria                                      | ... | ... | ... | ... | ... | 2              |
| Carcinoma of breast in pregnancy                               | ... | ... | ... | ... | ... | 1              |
| Severe chorea with mitral regurgitation complicating pregnancy | ... | ... | ... | ... | ... | 1              |
| Less severe chorea complicating pregnancy                      | ... | ... | ... | ... | ... | 1              |
| Tuberculosis complicating pregnancy                            | ... | ... | ... | ... | ... | 1              |
| Heart Disease  | ... | ... | ... | ... | ... | 9              |
| Fibroid of uterus  | ... | ... | ... | ... | ... | 1              |
| Ovarian cyst   | ... | ... | ... | ... | ... | 1              |
| Cases seeking advice re sterility                              | ... | ... | ... | ... | ... | 8              |
| Wasserman reaction   | ... | ... | ... | ... | ... | 5 (1 positive) |

Every effort is made to ascertain the result of the labour ; so far as is known, two cases ended in stillbirths.

EDUCATIONAL WORK.

The educational work has been carried out by the staff, with the same energy and enthusiasm as in former years.

This work comprises :—

- (1) Health Talks.
- (2) Classes.
- (3) Evening Lectures.
- (4) Baby Week.

(1) *Health Talks.*

These are held in the waiting hall every afternoon, while the Infant Consultations are in progress. A syllabus was drawn up of Health Talks for the year, so that mothers who attended regularly during 1928, should have acquired a fair notion of the elements of Infant Hygiene.

During 1928 there were given 417 Health Talks, with a total attendance of 6,869.

(2) *Classes.*

Every week, except during holidays, a class is held in the class-room, in Mothercraft, Sewing and Cookery.

The Mothercraft Classes in 1928 numbered 44, with a total attendance of 538, and an average attendance of 12.

The Sewing Classes numbered 42, with a total attendance of 669, and an average attendance of 16.

The Cookery Classes numbered 23, with a total attendance of 254, and an average attendance of 11.

During the latter part of the year, the Cookery Class was temporarily given up, and replaced by a series of talks on Housewifery, given by an expert in that subject.

The classes on Housewifery numbered 13 with a total attendance of 218, and an average attendance of 16.

### (3) *Evening Lectures.*

In 1927, many fathers of children attending the Centre had shown great willingness to contribute specimens of their handicraft to the "Fathers' Work" stall of the Baby Week Exhibition, and in many other ways, fathers had shown interest in the work of the Centre. It was therefore, decided this year to make a special effort to encourage and interest the fathers. To this end, four lectures were arranged and held during March at 8 p.m., on subjects of particular interest to men, namely, Photography, Gardening and Handicrafts.

Although these lectures were much advertised and personal invitations were given by the staff, and by the Mothers' Committee to as many men as possible, the attendance was disappointingly small. The lectures were so excellent and the few men present showed so much keenness, that it was particularly regrettable that the audiences were so poor.

### (4) *Baby Week.*

The Baby Week Exhibition was held in June. It was mainly an exhibition of parents' work.

The Living Pictures or Clock-work Figures, acted by the mothers, which formed such an entertaining and educational part of the 1927 Exhibition, were repeated this year with one or two amendments. The hall was packed with visitors on each day of the Exhibition.

## 11. SPECIAL CLINICS.

### (1) *The Dental Clinic.*

Continuous educational work is now taking effect, and the parents are commencing to realise the importance of a clean mouth. The former prejudice against having teeth removed during pregnancy, has largely disappeared.

|                    |     |     |     |     |     |       |
|--------------------|-----|-----|-----|-----|-----|-------|
| No. of Clinics     | ... | ... | ... | ... | ... | 236   |
| Mothers attending  | ... | ... | ... | ... | ... | 3,937 |
| Children attending | ... | ... | ... | ... | ... | 1,281 |
| Total attendance   | ... | ... | ..  | ... | ... | 5,218 |
| Average attendance | ... | ... | ... | ... | ... | 22    |

### (2) *Remedial Exercise Clinic.*

During 1928, the number of these clinics held was 48, the total attendances 594, and the average attendance at each clinic 12. The number of children who attended the Clinic in 1928 was 145 and the average attendance on the part of each child was 4. While this is not a high average attendance per child, it is all that can be allowed. It has to be remembered that, as the Carnegie Institute has so far been the only Centre providing a remedial exercise clinic, children have been sent to it from every part of the City; and in many cases their attendance involves a long journey, and considerable expenditure of time and money. Further, 12 children—the average number at each clinic—is as many as can be adequately dealt with at a clinic of this sort, where each child requires much individual attention, and much time has to be devoted to seeing that each individual mother has fully grasped the exercises which the child has to do.

Miss West, the fully qualified masseuse and remedial gymnast in charge of the clinic (which is also under the supervision of one of the assistant Medical Officers), teaches each child two or three exercises suitable to the condition for which he or she has been sent to the clinic; she also fully explains the exercises to the child's mother, and emphasises the necessity for the child to carry them out daily.

A printed list of exercises for different defects has been prepared for the use of all the Birmingham Welfare Centres, and on this printed slip the exercises which any particular child has to do are marked, and the paper given to the mother to take home as a reminder. An appointment is then made for the mother to return to the Clinic in two or three weeks' time, to show what progress the child is making, to see whether he is doing the exercises properly, and to teach him further exercises if necessary.

If the child comes from a considerable distance the exercises are supervised at the nearest Welfare Centre.

The 145 children who attended the Clinic in 1928 were treated and instructed in remedial exercises for the following conditions:—

|                           |     |     |     |     |    |
|---------------------------|-----|-----|-----|-----|----|
| Knock-knee and flat foot  | ... | ... | ... | ... | 35 |
| Flat foot                 | ... | ... | ... | ... | 11 |
| Bow-legs and flat foot    | ... | ... | ... | ... | 7  |
| Knock knee                | ... | ... | ... | ... | 9  |
| Bow-legs                  | ... | ... | ... | ... | 21 |
| Faulty posture            | ... | ... | ... | ... | 26 |
| Defective chest expansion | ... | ... | ... | ... | 12 |
| Constipation              | ... | ... | ... | ... | 13 |
| Other conditions          | ... | ... | ... | ... | 11 |

The results of treatment are necessarily slow. In a great many cases, however, where the child is intelligent and the mother painstaking, great, and sometimes striking, improvement has been produced.

A Drill Class is now held one afternoon a week, for children suffering from bad posture, round shoulders, etc.

(3) *Light Treatment Clinic.* No. held 145.

Attendances 7,314. Average attendance 50.

Details of the work are included with those of the other Light Treatment Clinics.

(4) *X-ray Clinic.* No. held 45.

Attendances 715. Average attendance 16.

This clinic plays an important part both from the point of view of diagnosis and research.

Radiographs have been used in relation to the treatment of rickets with Ultra-violet Light, such treatment being continued until the bones are normal in the photograph. Radiographs have been used too, as a means of diagnosis in cases of pyloric obstruction in infants, in joint affections, in lung conditions, and in relation to congenital heart defects.

An enquiry, which is still proceeding, has been made as to the radiographic appearance of the lungs in children subsequent to attacks of pneumonia and broncho-pneumonia, and as to the period of persistence of such changes.

*Cases Radiographed.*

|                    |     |     |     |     |     |     |
|--------------------|-----|-----|-----|-----|-----|-----|
| Rickets            | ... | ... | ... | ... | ... | 447 |
| Lung Conditions    | ... | ... | ... | ... | ... | 189 |
| Stomach Conditions | ... | ... | ... | ... | ... | 19  |
| Other Conditions   | ... | ... | ... | ... | ... | 60  |

(5) *Test-feed Clinic.* No. held 46.

Attendances 319. Average attendance 7.

While the average attendance may appear low, it provides sufficient work for the one nurse who can be spared for this duty. The clinic is of immense value in regulating breast feeding, and has over and over again demonstrated its usefulness in individual cases. It also serves for training pupil Health Visitors in test-feed methods, and forms a valuable means of educating mothers in infant care. The mothers attend with their babies from 9.30 a.m. to 5 p.m. A hot meal is provided for those coming from a distance. Three test-feeds are carried out, and the children are seen by a medical officer, who gives the necessary advice supplementing the teaching by the nurse in charge.

### III. THE OBSERVATION WARD.

No. of beds—10 cots, 1 adult bed.

Cases admitted—

|          |     |     |     |     |
|----------|-----|-----|-----|-----|
| Children | ... | ... | ... | 111 |
| Mothers  | ... | ... | ... | 13  |

The primary purpose of the Ward is the investigation of cases of chronic ill-health in infants and young children. In many cases, careful and prolonged observation is required to establish a diagnosis, or to test a method of treatment. The results obtained have been excellent in relation to the children themselves, while the educational value of the ward is considerable. The investigation of cases of anæmia has continued, while a further investigation has been undertaken in relation to chronic pulmonary affections in children, in which the help obtained from the radiologist has been of great value. Investigations have also been made into intestinal indigestion with particular reference to fat absorption and excretion. These enquiries are still proceeding. The mothers were admitted to the Ward with their infants when these were breast-fed; in two cases for the restoration of breast-feeding where there had been mismanagement, and in seven cases where the child was suffering from enteritis and debility.

The reasons for admission were chronic wasting, generally associated with vomiting, anæmia, and chronic enteritis. The ultimate diagnoses were as follows:—

|                                 |     |     |     |    |                                    |     |     |     |       |     |
|---------------------------------|-----|-----|-----|----|------------------------------------|-----|-----|-----|-------|-----|
| Simple underfeeding             | ... | ... | ... | 5  | Acrodynia                          | ... | ... | ... | ...   | 2   |
| Mismanagement                   | ... | ... | ... | 18 | Tuberculosis                       | ... | ... | ... | ...   | 3   |
| Chronic dyspepsia               | ... | ... | ... | 11 | Syphilis                           | ... | ... | ... | ...   | 1   |
| Chronic enteritis               | ... | ... | ... | 9  | Chest conditions                   | ... | ... | ... | ...   | 12  |
| Habit vomiting                  | ... | ... | ... | 4  | Rickets (with complications)       | ... | ... | ... | ...   | 6   |
| Celiac Disease                  | ... | ... | ... | 2  | Congenital debility and other con- | ... | ... | ... | ...   | 23  |
| Pyloric stenosis                | ... | ... | ... | 3  | ditions                            | ... | ... | ... | ...   |     |
| Fatty degeneration of the liver | ... | ... | ... |    |                                    |     |     |     |       |     |
| (Acidosis)                      | ... | ... | ... | 1  |                                    |     |     |     |       |     |
| Anæmia                          | ... | ... | ... | 7  |                                    |     |     |     |       |     |
| Pyelitis                        | ... | ... | ... | 4  |                                    |     |     |     |       |     |
|                                 |     |     |     |    |                                    |     |     |     | Total | 111 |

The results obtained were as follows:—

|                                |     |     |     |     |     |    |
|--------------------------------|-----|-----|-----|-----|-----|----|
| Discharged (a) in good health  | ... | ... | ... | ... | ... | 47 |
| „ (b) improved                 | ... | ... | ... | ... | ... | 37 |
| „ (c) in status quo            | ... | ... | ... | ... | ... | 16 |
| Died                           | ... | ... | ... | ... | ... | 5  |
| Transferred to other hospitals | ... | ... | ... | ... | ... | 6  |

### THE ULTRA VIOLET LIGHT CLINICS.

The number of these clinics has been increased from five to nine. The lamps are now installed at the following Centres:—

The Carnegie Institute.  
Aston Street Centre.  
Floodgate Street Centre.  
Hope Street Centre.  
Selly Oak Centre.  
Stirchley Centre.  
Harborne Centre.  
Lichfield Road Centre.  
Stratford Road Centre.

The following table gives the cases treated and their attendances :—

#### ATTENDANCES AT ULTRA VIOLET LIGHT CLINICS DURING 1928.

##### CHILDREN.

| Condition.                       | No. of cases. | Attendances. |
|----------------------------------|---------------|--------------|
| Rickets ... ..                   | 293           | 3,562        |
| Prophylaxis (Rickets) ... ..     | 60            | 606          |
| Debility ... ..                  | 526           | 6,285        |
| Anæmia ... ..                    | 54            | 570          |
| Catarrhal children ... ..        | 200           | 2,724        |
| Convalescents: Whooping Cough    | 32            | 244          |
| Measles                          | 10            | 120          |
| Lung conditions ... ..           | 84            | 978          |
| Asthma ... ..                    | 10            | 137          |
| Enlarged Glands ... ..           | 8             | 105          |
| Skin Conditions ... ..           | 22            | 378          |
| Nervous children (Mismanagement) | 44            | 430          |
| Other conditions ... ..          | 32            | 342          |
| Total ... ..                     | 1,375         | 16,481       |

##### MOTHERS.

| Condition.                  | No. of cases. | Attendances. |
|-----------------------------|---------------|--------------|
| Alopecia ... ..             | 8             | 189          |
| Neurasthenia ... ..         | 2             | 29           |
| Rheumatic conditions ... .. | 3             | 118          |
| Skin conditions ... ..      | 3             | 89           |
| Debility ... ..             | 3             | 66           |
| Other conditions ... ..     | 2             | 54           |
| Total ... ..                | 21            | 545          |

It is interesting to note that the incidence of rickets markedly diminished in the Spring of 1929. This is reported not only from the Child Welfare Centres, but also from the Children's Hospital. Some of this decrease may be attributed to the good Summer of 1928, some is undoubtedly due to the effect of the Light Clinics, and the efforts of the Child Welfare Centres. The sale of cod liver oil at the Centres has increased by more than 1,500 gallons in the last three years.

#### THE TRAINING COURSE FOR HEALTH VISITORS.

In January, 1928, the Public Health Committee in conjunction with the Birmingham University, inaugurated a training course for nurses who wished to obtain the Health Visitors' Certificate. Under the Ministry of Health Regulations, no woman (with certain exceptions respecting those already engaged in such work) can be appointed as a Health Visitor after March, 1928, unless she is a trained nurse and holds in addition, the Central Midwives Board Certificate, and the Ministry of Health Certificate for Health Visitors.

The course necessary for the certificate must extend over a period of six months; and this is beyond the means of the average nurse. In view of this, and of the fact that in Birmingham at least twelve to sixteen new Health Visitors are needed every year to fill vacancies on the Staff, the Public Health Committee decided with the permission of the Ministry to appoint at least twelve *pupil* Health Visitors annually. Such pupils are appointed for twelve months at half salary, six months of the period being devoted to the training course, and six months to the ordinary work of the department. Subsequently suitable pupils receive permanent appointments. This arrangement is financially acceptable to nurses, and provides a nucleus for the Birmingham training course, which is however also utilized by independent candidates and by health visitors sent in by neighbouring authorities. The training course includes a course of lectures at the University, with practical training in the Public Health Department. The first course extended from January to June, 1928. Experience proved the need for a Tutor to co-ordinate the instruction; Miss M. A. Lloyd was appointed to the post and her reports are appended.

The results have been most satisfactory. Out of the eighteen candidates, seventeen obtained their certificates at their first examination.

TRAINING COURSE FOR HEALTH VISITORS, JANUARY TO JUNE, 1928. (REPORT BY MISS LLOYD).

The first Training Course for Health Visitors at the Birmingham University and Public Health Department, commenced on January 1st, 1928, and continued until June 30th, 1928, six Birmingham Pupil Health Visitors taking the Course.

During this period of six months, one month was allotted to work as a School Nurse, under the Birmingham Education Authority, one month to Tuberculosis work, one month to general Health Visiting, and three months to Maternity and Child Welfare Work.

In this time, 3,145 visits were paid by the Pupil Health Visitors, whose training also included work at the various Infant Welfare Centres, Special Clinics and Ante-natal work.

Thirty special tutorials were given, including two on " Remedial Exercises and Orthopædic Work," and three on " Voice Production." Eight test examinations were held.

TRAINING COURSE FOR HEALTH VISITORS, OCT., 1928, TO MAR., 1929. (REPORT BY MISS LLOYD).

This Course commenced on October 1st, 1928, and was continued for six months until March 27th, 1929, twelve students taking the Course, viz.: 6 Pupil Health Visitors and 6 independent candidates.

The Lectures were given at the University on four evenings of the week at 5.30 p.m., leaving the days free for Practical Work, Tutorials and Demonstrations.

The Chief School Medical Officer arranged for each student to have a month's work as School Nurse, and in the Public Health Department it was possible to plan that every student worked for a month as Tuberculosis Visitor, a month in general Health Visiting, and three months in Maternity and Child Welfare work.

During this period of six months the twelve students paid 4,900 visits, either by themselves or with the Tutor, in addition to others paid by them in company with experienced members of the Staff. Furthermore, the students assisted at the various clinics, including Ultra Violet Light, Dental, Test-feeding, Venereal Disease, Ante-natal and Children's Clinics at all the Welfare Centres in the City, as well as School Clinics. The Chief Tuberculosis Medical Officer also arranged for them to attend the Anti-Tuberculosis Dispensary.

Twenty extra tutorials have been given in the evening (5.30 p.m.) on special subjects, including three on " Voice Production." Ninety-six ordinary tutorials have been given bearing on all branches of the work, and including demonstrations on " Drain Testing and Practical Sanitation."

The Estates Manager gave a talk and demonstration on " Housing in Birmingham." Special individual instruction has been given on " How to give Health Talks."

When a student has needed extra help, apart from the ordinary classes, one or two hours a week have been set aside for such tuition.

Ten Test Papers have been given to the students.

In order to give the students as wide a knowledge as possible of social work running parallel with their own, it was arranged with the help of the Authorities concerned for them to see a number of outside institutions.

*The Poor Law Guardians* gave leave to visit:—The Cottage Homes, Receiving Homes, Dudley Road Hospital, Monyhull Colony for Mental Defectives.

*The Education Committee*:—Open-Air School at Uffculme, Roof School at St. Thomas's, Nursery School, Special Schools.

*Public Health Committee*:—Pype Hayes Convalescent Home, Heathfield Road Maternity Home, Lodge Road Babies' Hospital, Yardley Road Sanatorium, Disinfection Station and Incinerator.

*Other Authorities*:—Sewage Farm, Municipal Baths and Wash Houses, Hope Lodge, Children's Court, Various Hospitals, including Warwickshire Orthopædic Hospital and Northfield Crippled Children's Home.

A visit was also arranged to Messrs. Cadbury's Works and to a Model Dairy.

## THE BABIES' HOSPITAL.

The occurrence of smallpox in Birmingham, necessitated the removal of the Babies' Hospital from the Witton Hospital (which reverted to use for smallpox) to Lodge Road Hospital, on January 16th, 1928. The wards in this Hospital have been adapted as far as possible to the needs of the Babies' Hospital, but in many respects, they remain unsatisfactory. However, with careful nursing and with close supervision by the Resident Medical Officer good results have been obtained.

There were no serious outbreaks of infectious disease; two cases of whooping cough, developing a few days after admission, were sent to Selly Oak Hospital. One case of chicken-pox developed a few days after admission and infected another child. Four children were transferred to the Children's Hospital for operation, three being cases of pyloric stenosis.

During the year, the number of cases admitted to the Hospital was 288. The average duration of stay was 56 days.

|   |     |     |     |     |     |     |     |     |     |
|---|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Number discharged                             | ... | ... | ... | ... | ... | ... | ... | ... | 272 |
| Number recovered                              | ... | ... | ... | ... | ... | ... | ... | ... | 221 |
| Number improved, but not completely recovered | ... | ... | ... | ... | ... | ... | ... | ... | 22  |
| Number in status quo                          | ... | ... | ... | ... | ... | ... | ... | ... | 29  |
| Number of deaths                              | ... | ... | ... | ... | ... | ... | ... | ... | 11  |

These deaths all occurred in children under one year of age, the causes being :—

|                                   |     |     |     |     |   |
|-----------------------------------|-----|-----|-----|-----|---|
| Marasmus and chronic enteritis    | ... | ... | ... | ... | 2 |
| Marasmus and broncho-pneumonia    | ... | ... | ... | ... | 1 |
| Prematurity and broncho-pneumonia | ... | ... | ... | ... | 1 |
| Gastritis and chronic enteritis   | ... | ... | ... | ... | 1 |
| Prematurity and chronic enteritis | ... | ... | ... | ... | 2 |
| Marasmus and acute bronchitis     | ... | ... | ... | ... | 1 |
| Marasmus and prematurity          | ... | ... | ... | ... | 2 |
| Marasmus and pneumonia            | ... | ... | ... | ... | 1 |

The barrier system of nursing was again carried out and showed good results in preventing spread of infection.

The cases of infectious disease that occurred in hospital were :—

|                                     |     |     |          |   |
|-------------------------------------|-----|-----|----------|---|
| Whooping Cough                      | ... | ... | 3 cases. | All admitted incubating the disease.  |
| Measles                             | ... | ... | 4 „      | 2 cases admitted incubating the disease.<br>2 cases contacts while in hospital. |
| Chicken Pox                         | ... | ... | 3 „      | 2 cases contacts while in hospital.<br>1 case admitted, incubating the disease. |
| Colitis caused by Flexner Bacillus. |     |     |          | 1 case.   |

A Mercury-Vapour Lamp was erected at the end of one ward, where Ultra-Violet Ray Treatment was carried out.

The number of in-patients who had this treatment was 155. No out-patients were treated.

The staff all kept fairly well during 1928. One case of jaundice occurred.

## CHILDREN UNDER ONE YEAR.

Number admitted in 1928 was 143.

The distribution of cases was as follows :—

|                   |     |     |     |    |                             |     |     |     |    |
|-------------------|-----|-----|-----|----|-----------------------------|-----|-----|-----|----|
| Marasmus          | ... | ... | ... | 13 | Bronchitis                  | ... | ... | ... | 5  |
| Prematurity       | ... | ... | ... | 11 | Pyelitis                    | ... | ... | ... | 1  |
| Malnutrition      | ... | ... | ... | 33 | Congenital Heart            | ... | ... | ... | 3  |
| Chronic Enteritis | ... | ... | ... | 16 | Rickets                     | ... | ... | ... | 10 |
| Debility          | ... | ... | ... | 27 | Convulsions                 | ... | ... | ... | 1  |
| Dyspepsia         | ... | ... | ... | 18 | Pink's Disease. (Acrodynia) | ... | ... | ... | 1  |
| Broncho-pneumonia | ... | ... | ... | 1  | Habitual Vomiting           | ... | ... | ... | 3  |

## CHILDREN ONE TO TWO YEARS.

Number admitted—84.

The distribution of cases was as follows :—

|                  |     |     |     |    |            |     |     |     |   |
|------------------|-----|-----|-----|----|------------|-----|-----|-----|---|
| Rickets          | ... | ... | ... | 24 | Bronchitis | ... | ... | ... | 3 |
| Malnutrition     | ... | ... | ... | 12 | Pyelitis   | ... | ... | ... | 2 |
| Debility         | ... | ... | ... | 38 | Anæmia     | ... | ... | ... | 3 |
| Gastro-enteritis | ... | ... | ... | 2  |            |     |     |     |   |

## CHILDREN TWO TO FIVE YEARS.

Number admitted—61.

The distribution of cases was as follows:—

|                |     |     |     |    |                        |     |   |
|----------------|-----|-----|-----|----|------------------------|-----|---|
| Debility       | ... | ... | ... | 37 | Rheumatic Endocarditis | ... | 1 |
| Rickets        | ... | ... | ... | 9  | Chronic Enteritis      | ... | 1 |
| Cœliac Disease | ... | ... | ... | 2  | Chronic Bronchitis     | ... | 4 |
| Starvation     | ... | ... | ... | 3  | Broncho-pneumonia      | ... | 1 |
| Anæmia         | ... | ... | ... | 2  | Bronchiectasis         | ... | 1 |

More children between the ages of one and five years were treated in 1928 than in previous years, the second ward for older children having been available from September, 1927.

Special investigation into the treatment of cases of Rickets continued to be undertaken in 1928; it was begun in 1927. Each case was treated with one of the following:—Ultra-violet Light, Radiostol or cod liver oil emulsion, in conjunction with a diet rich in vitamins. Although many of the cases admitted in 1928 were suffering from very severe rickets, sufficient comparable cases have not come under treatment since 1927, to allow any definite deductions to be made. It appears there is very little difference in the rate at which the rickets healed under these several forms of treatment. The average number of days in hospital was 84.

During the latter part of 1928, a special investigation was undertaken into the result of Test-feeds in children under one year of age. Special examinations are being carried out on the gastric juice with regard to free hydrochloric acid, total acidity, chlorides, etc. The results have been so variable that a large number of cases have to be examined before any definite deductions can be made.

## TREATMENT OF EAR, NOSE, THROAT AND EYE CONDITIONS.

The arrangements made with the Children's Hospital for the treatment of children under five years of age, suffering from enlarged tonsils and adenoids, has been extended to include conditions affecting the ears and eyes, a suitable payment being made in each case. The cases examined during 1928 were as follows:—

|                      |     |     |     |     |     |     |     |
|----------------------|-----|-----|-----|-----|-----|-----|-----|
| Tonsils and Adenoids | ... | ... | ... | ... | ... | ... | 598 |
| Ear Conditions       | ... | ... | ... | ... | ... | ... | 92  |
| Eye Conditions       | ... | ... | ... | ... | ... | ... | 145 |

It will be seen that good use has been made of these arrangements for the benefit of the children.

## MUNICIPAL MATERNITY HOME. HEATHFIELD ROAD.

The number of cases admitted during 1928 was 376, an increase over the previous year. The average duration of stay was 13.3 days, and medical help was sought in 193 cases. The reasons for which medical help was sought, were as follows:—

*For Mother.*

- 1 Ante-partum hæmorrhage.
- 1 Transverse presentation.
- 1 Prolapse of cord.
- 19 Delayed second stage of labour.
- 7 Fœtal distress.
- 3 Rigid perineum.
- 4 Albuminuria with rapid pulse, during second stage.
- 1 Adherent placenta.
- 1 Retained membrane.
- 3 Breech with extended legs.
- 46 Perineal tears.

*For Infant.*

- 1 Discharging ear.
- 1 Swelling on right side of neck.
- 1 Mastitis.
- 1 Sore buttocks.
- 1 Congenital stoppage of bowel.
- 1 Mælena neonatorum.

There was one case of puerperal sepsis, resulting in death, and four cases of puerperal pyrexia with recovery.

Among the infants, five children suffered from discharging eyes, and in two of these cases, the condition was definitely ophthalmia neonatorum. There were no cases of pemphigus neonatorum.

In six cases, there was failure to establish breast feeding. In three cases, this was due to the mother's ill-health, and in three cases to breast deformities.

The foetal deaths are given below :—

|                          |   |  |                      |
|--------------------------|---|--|----------------------|
|                          | 2 | Macerated foetus.                        |                      |
| Stillbirths.             | 1 | Anencephalic foetus.                     |                      |
|                          | 2 | Instrumental delivery. (Birth Injuries). |                      |
|                          | 3 | Premature birth.                         |                      |
|                          |   |  | 1 Spina Bifida.      |
| Within 10 days of birth. |   |  | 1 Melæna neonatorum. |
|                          |   |  | 1 Cardiac failure.   |

Every effort is made to instruct the mother as to the care of the child before discharge, and she is advised to attend the Child Welfare Centres, subsequent to leaving the Home.

#### PROVISION FOR CONFINEMENTS AT THE COST OF THE PUBLIC HEALTH DEPARTMENT IN HOSPITALS OF THE BOARD OF GUARDIANS.

During the year under review 916 patients were admitted to Dudley Road Hospital or Selly Oak Hospital for confinement because of the inadequacy of their home conditions. In the majority of cases these consisted of lodgings in cottages.

The cost to the Public Health Department was £5,183. The amount of money recovered from the patients was £994.

#### HOME HELPS.

Four hundred and four cases were attended in 1928, as compared with 327 in the previous year.

Forty-two Home Helps are now available, as follows :—

- 6 in Sparkhill, Greet and Hall Green areas.
- 7 in Small Heath, Hay Mills and Bordesley Green.
- 1 in Balsall Heath.
- 1 in Billesley and Yardley Wood.
- 6 in Stirchley, Selly Oak and Northfield.
- 2 in Hockley and Handsworth.
- 6 in Aston, Erdington, including Perry Common and Pype Hayes.
- 4 in Nechells and Saltley.
- 5 in Ladywood, Winson Green and Harborne.

There are also four peripatetic Home Helps living in the Centre of the City, who assist in any area where their services are most needed.

Great care is taken to appoint reliable, respectable women, who are thrifty house-wives and thoroughly used to the management of young children. An essential qualification is good cooking.

Most of the cases attended have been confinements. Although Home Helps should be engaged at least one month in advance, many emergency cases have been dealt with. If these are notified before 9.30 a.m., a visit is paid and arrangements are completed the same day.

The scheme is primarily intended to help those mothers who are unable to afford an adequate fee for the attention they require.

Home Helps are also used by the employees of Messrs. Cadbury Bros., and are supplied for any non-infectious illness in addition to maternity cases, according to arrangements with the Workers' Council. Their services are much appreciated.

## CONVALESCENT HOME FOR MOTHERS.

The popularity of the Municipal Convalescent Home for Nursing and Expectant Mothers at Pye Hayes Hall, Erdington, has increased, and there has been no dearth of applications for admission during the year. The practice of admitting a few infants, whose mothers are seriously ill in hospital, etc., has been continued. The number of these that the Matron was able to deal with was sixteen. Twenty-six ante-natal cases were admitted and greatly benefited by their stay. The educational side of the work continues to be an important feature. There can be no doubt that a fortnight's stay in such an institution, especially for the inexperienced young mother, is of very great value.

The number of beds is 24, and the cases admitted were as follows :—

|  |     |     |     |
|--|-----|-----|-----|
| No. of mothers admitted (including ante-natal cases)   | ... | ... | 429 |
| No. of babies admitted (including 16 separate infants) | ... | ... | 416 |

## MATERNITY OUTFITS.

The sale of sterilised maternity outfits was commenced in 1922. It was considered desirable to have available a supply of sterilised dressings, etc., for the use of doctor or midwife at the confinement. These outfits can be obtained at the Child Welfare Centres and at the Public Health Department.

The number sold is small, though it is increasing year by year. Even yet, however, there appears to be a lack of appreciation of the importance of sterilised dressings. The number of outfits sold in 1928 was 188 large and 37 small, making a total of 225.

The large set "A" sold at 6s. 2d. contains—

|                                      |                                     |
|--------------------------------------|-------------------------------------|
| 1 Sterilised binder.                 | 6 Large perineal pads.              |
| 1 Accouchement sheet, 12in. by 12in. | 1 Packet of antiseptic wool flakes. |
| 2 Sterilised sheets.                 | Safety pins.                        |
| 6 Small perineal pads.               | 2 Brown paper, water-proof sheets.  |

The small set "B" sold at 3/- contains—

|                                  |                                   |
|----------------------------------|-----------------------------------|
| 6 Small perineal pads.           | Safety pins.                      |
| 6 Large perineal pads.           | 2 Brown paper water-proof sheets. |
| 1 Packet antiseptic wool flakes. |                                   |

## MATERNITY FEEDING CENTRES.

During the year there were 25,616 dinners served at the five Maternity Feeding Centres, which is an increase of more than 5,000 over the number in the previous year.

The Municipal Kitchen has been running very satisfactorily throughout the year, and while attention has always been paid to providing nourishing and varied meals, the expenditure is very moderate. This is mainly owing to good management by the cook.

The reports from the centres show appreciation of the cooking and of the punctuality in the delivery of the meals. The attendances were as follows :—

|                       |     |     |     |     |     |     |       |          |    |
|-----------------------|-----|-----|-----|-----|-----|-----|-------|----------|----|
| Newtown Row           | ... | ... | ... | ... | ... | ... | 6,795 | } 25,616 |    |
| Smith Street          | ... | ... | ... | ... | ... | ... | 4,716 |          |    |
| Hope Street           | ... | ... | ... | ... | ... | ... | 4,910 |          |    |
| River Street          | ... | ... | ... | ... | ... | ... | 4,544 |          |    |
| Bloomsbury Street     | ... | ... | ... | ... | ... | ... | 4,651 |          |    |
|                       |     |     |     |     |     |     | £     | s.       | d. |
| Cost of Food          | ... | ... | ... | ... | ... | ... | 584   | 5        | 8  |
| Cost of Transport     | ... | ... | ... | ... | ... | ... | 85    | 7        | 0  |
|                       |     |     |     |     |     |     | <hr/> |          |    |
|                       |     |     |     |     |     |     | 669   | 12       | 8  |
| Receipts from Centres | ... | ... | ... | ... | ... | ... | 211   | 15       | 3  |
|                       |     |     |     |     |     |     | <hr/> |          |    |
| Net cost of food      | ... | ... | ... | ... | ... | ... | £457  | 17       | 5  |

Net cost per meal = 4.3d., excluding wages and overhead charges.

## SUPERVISION OF MIDWIVES.

The supervision of midwives has continued to be carried out by the two Inspectors of Midwives. During 1928, the number of midwives who notified their intention to practise in the City was 202, of whom 172 were certificated and 30 were "bona fide" midwives under the Maternity Act of 1902.

The midwives attended 10,655 cases or 60 per cent. of the confinements in the City. The Maternity Hospital delivered 1,648 women, a small proportion coming from outside the City. Dudley Road Hospital and Selly Oak Hospital were responsible for 1,282 and 626 deliveries respectively. About 20 per cent. of the confinements took place in Hospital, 60 per cent. were attended by midwives, and the remaining 20 per cent. included those delivered in nursing homes, of whom 376 were delivered in the Municipal Maternity Home.

The midwives sent for *medical help* in 3,236 cases; for the mother in 2,449 instances and for the child in 787. Help was required in rather less than a third of the cases.

Reasons for sending for medical help.

| <i>For Mother—2,449.</i> |     |     |     | <i>For Child—787.</i> |     |     |     |
|--------------------------|-----|-----|-----|-----------------------|-----|-----|-----|
| Delayed labour           | ... | ... | 902 | Ophthalmia            | ... | ... | 374 |
| Laceration of perineum   | ... | ... | 641 | Prematurity           | ... | ... | 142 |
| Hæmorrhage               | ... | ... | 210 | Convulsions           | ... | ... | 11  |
| Adherent placenta        | ... | ... | 104 | Jaundice              | ... | ... | 29  |
| Abnormal presentation    | ... | ... | 91  | Deformity             | ... | ... | 36  |
| Abortion or miscarriage  | ... | ... | 47  | Skin eruptions        | ... | ... | 60  |
| Rise of temperature      | ... | ... | 141 | Other causes          | ... | ... | 135 |
| Other causes             | ... | ... | 313 |                       |     |     |     |

Under the Midwives' Act the supervising Authority is required to pay the doctor's fee when called to assist the midwife, and is entitled to subsequently recover the fee from the husband. In a large number of cases, the recovery of even part of the fee entails much labour and expense. An *insurance scheme* was inaugurated in 1927 under which by a payment of five shillings, an expectant mother can insure against payment of the doctor's fee, if it should be necessary to call one in. The scheme has been in operation throughout 1928. The number insuring was 3,068. Medical help was required in 1,196 cases, rather more than a third of the total. The proportion is somewhat higher than among the uninsured cases (2,040 out of 7,587 cases).

The fees paid for insurance amounted to £767, and the amount paid to doctors was £1,944 13s. 10d., leaving a deficit of £1,177 13s. 10d. The uninsured cases for whom medical help was called were 2,040 out of 7,587, but accounts were received for only 567, at a cost of £745 16s. 0d. Of this £443 13s. 3d. was recovered at a cost of £227 16s. 8d., leaving a total deficit of £529 19s. 3d. The proportionate deficit works out roughly at 18/- per case in both insured and uninsured cases. There is, however, a likelihood that women knowing they have previously had difficult labours, may insure, suspecting they will again require medical help, and also that others knowing they are insured, will seek to persuade the midwife to call the doctor for conditions not constituting an emergency in the estimation of the midwife. It would be of advantage to have a satisfactory medical ante-natal examination as a necessary preliminary to insurance.

The Midwives' Inspectors paid the following visits:—

|                                       |     |     |     |     |     |     |
|---------------------------------------|-----|-----|-----|-----|-----|-----|
| Routine visits to midwives            | ... | ... | ... | ... | ... | 423 |
| Visits to Stillbirths                 | ... | ... | ... | ... | ... | 145 |
| Visits to Ophthalmia Neonatorum cases | ... | ... | ... | ... | ... | 836 |
| Visits to cases of Puerperal sepsis   | ... | ... | ... | ... | ... | 223 |
| Visits to Nursing Homes               | ... | ... | ... | ... | ... | 137 |
| Visits regarding Medical Help         | ... | ... | ... | ... | ... | 489 |

There were 398 interviews with midwives at the Public Health Department.

During the year a subsidy was granted to a midwife in an outlying district, since it is advisable to maintain a satisfactory maternity service there, although the population is insufficient to completely support a midwife. It was found necessary to pay compensation to three midwives who were suspended from practice under the Midwives Act, as being liable to spread infection,—in two cases owing to sepsis and in the third owing to a skin infection of the hands. Two midwives were reported to the Public Health Committee; and one of these was brought before the Central Midwives Board. Her case is still under consideration. Several midwives were cautioned, but their irregularities were not considered sufficiently serious for further action.

The practices of certain handywomen were investigated, and these women were interviewed and warned.

The Refresher Courses at the Maternity Hospital have been continued. Fifty-five midwives attended during 1928 and were much benefited by doing so. It is pleasant to be able to report a steady improvement in the standard of ante-natal work of the midwives.

### NURSING HOMES.

Under the Nursing Homes Act, 1927, all Homes applying for registration were inspected by the Assistant Medical Officer of Health, and the Inspector of Midwives for the district. Reports giving plans and details of equipment and accommodation were then submitted. It was necessary to include all Maternity Homes already registered under the new Act. The following figures give the results :—

|                                      |     |     |     |     |    |
|--------------------------------------|-----|-----|-----|-----|----|
| No. of applications for registration | ... | ... | ... | ... | 72 |
| No. registered                       | ... | ... | ... | ... | 62 |
| Registration refused                 | ... | ... | ... | ... | 7  |
| Appeals                              | ... | ... | ... | ... | —  |
| Applications withdrawn               | ... | ... | ... | ... | 1  |
| Registration unnecessary             | ... | ... | ... | ... | 2  |
| Applications for exemption           | ... | ... | ... | ... | 7  |
| No. granted exemption                | ... | ... | ... | ... | 7  |

The number of Homes in the City at the end of 1928 fall into the following classes :—

|                             |     |     |     |     |     |    |
|-----------------------------|-----|-----|-----|-----|-----|----|
| Total Homes                 | ... | ... | ... | ... | ... | 55 |
| Maternity Homes             | ... | ... | ... | ... | ... | 17 |
| Not more than 8 beds        | ... | ... | ... | ... | ... | 16 |
| Over 15 beds                | ... | ... | ... | ... | ... | 1  |
| General Nursing Homes       | ... | ... | ... | ... | ... | 58 |
| General and Maternity cases | ... | ... | ... | ... | ... | 22 |
| Medical and Surgical cases  | ... | ... | ... | ... | ... | 7  |
| Surgical cases only         | ... | ... | ... | ... | ... | 3  |
| Chronic and Senile cases    | ... | ... | ... | ... | ... | 6  |
|                             |     |     |     |     |     | —  |
| Not more than 8 beds        | ... | ... | ... | ... | ... | 18 |
| Not more than 15 beds       | ... | ... | ... | ... | ... | 15 |
| More than 15 beds           | ... | ... | ... | ... | ... | 5  |
|                             |     |     |     |     |     | —  |

The number of beds in Maternity Homes (excluding the Maternity Hospital) is 88; the number of beds in the combined nursing and maternity homes, where the number of maternity beds cannot be differentiated, is 233.

Since registration, one Home has been closed owing to the midwife leaving the district, and one has been closed compulsorily for negligence and contravention of rules, while one was closed owing to the conditions for registration not being acceptable. Four Homes have been closed by voluntary retirement.

### MATERNAL MORTALITY.

The deaths of women classed to pregnancy and child-bearing in Birmingham during 1928, numbered 66. The number of live births was 17,222, giving a maternal mortality rate per 1,000 births of 3.83. Comparing the figures given by the Registrar General for 1927, it will be found that Birmingham is below the country as a whole (4.11) and below the county boroughs as a whole (4.40) but above London (2.91) which has the lowest maternal mortality rate of any large area in the country.

The maternal mortality in previous years is shown in the table below:—

|      |     |     |     | Deaths from |                 | Rate per 1,000 Births (Total) |                    |
|------|-----|-----|-----|-------------|-----------------|-------------------------------|--------------------|
|      |     |     |     | Puerperal   | Other Puerperal | B'ham.                        | England and Wales. |
|      |     |     |     | Fever.      | Causes.         |                               |                    |
| 1911 | ... | ... | ... | 36          | 48              | 3.82                          | 3.87               |
| 1912 | ... | ... | ... | 27          | 45              | 3.25                          | 3.98               |
| 1913 | ... | ... | ... | 44          | 48              | 3.86                          | 3.96               |
| 1914 | ... | ... | ... | 33          | 41              | 3.19                          | 4.17               |
| 1915 | ... | ... | ... | 35          | 38              | 3.44                          | 4.18               |
| 1916 | ... | ... | ... | 31          | 40              | 3.44                          | 4.12               |
| 1917 | ... | ... | ... | 26          | 20              | 2.60                          | 3.89               |
| 1918 | ... | ... | ... | 29          | 22              | 3.03                          | 3.79               |
| 1919 | ... | ... | ... | 23          | 28              | 2.64                          | 4.37               |
| 1920 | ... | ... | ... | 51          | 39              | 3.59                          | 4.33               |
| 1921 | ... | ... | ... | 26          | 37              | 2.84                          | 3.91               |
| 1922 | ... | ... | ... | 25          | 35              | 3.02                          | 3.81               |
| 1923 | ... | ... | ... | 34          | 33              | 3.51                          | 3.81               |
| 1924 | ... | ... | ... | 37          | 35              | 3.91                          | 3.90               |
| 1925 | ... | ... | ... | 35          | 39              | 4.15                          | 4.08               |
| 1926 | ... | ... | ... | 41          | 33              | 4.13                          | 4.12               |
| 1927 | ... | ... | ... | 25          | 37              | 3.59                          | 4.11               |
| 1928 | ... | ... | ... | 32          | 34              | 3.83                          | —                  |

The causes of deaths as given on the death certificates may be classified as follows:—

|  |     |     |     |    |
|--|-----|-----|-----|----|
| Puerperal sepsis (after confinement or abortion)           | ... | ... | ... | 32 |
| Puerperal hæmorrhage                                       | ... | ... | ... | 10 |
| Albuminuria and convulsions                                | ... | ... | ... | 7  |
| Accidents of pregnancy (abortion, ectopic gestation, etc.) | ... | ... | ... | 6  |
| Embolism   | ... | ... | ... | 4  |
| Other causes   | ... | ... | ... | 7  |

#### PUERPERAL SEPSIS.

During the year 87 cases were notified as puerperal fever, and 139 as pyrexia; two were subsequently notified as scarlet fever, and nine cases were from outside Birmingham, leaving 217 cases. Of these, 124 were treated in hospital, viz. :—

|                      |     |     |     |     |     |
|----------------------|-----|-----|-----|-----|-----|
| Women's Hospital     | ... | ... | ... | ... | 73  |
| Selly Oak Hospital   | ... | ... | ... | ... | 19  |
| Dudley Road Hospital | ... | ... | ... | ... | 18  |
| General Hospital     | ... | ... | ... | ... | 2   |
| Queen's Hospital     | ... | ... | ... | ... | 4   |
| Nursing Homes        | ... | ..  | ... | ... | 8   |
|                      |     |     |     |     | 124 |

Associated conditions in the 217 cases were as follows:—

|                             |     |     |     |     |     |
|-----------------------------|-----|-----|-----|-----|-----|
| Induction                   | ... | ... | ... | ... | 10  |
| Cæsarian Section            | ... | ... | ... | ..  | 1   |
| Version                     | ... | ... | ... | ... | 7   |
| Craniotomy                  | ... | ... | ... | ... | 4   |
| Injury, Internal Laceration | ... | ... | ... | ... | 18  |
| Torn Perineum               | ... | ... | ... | ... | 48  |
| Manual Removal of Placenta  | ... | ... | ... | ... | 20  |
| Retained Products           | ... | ... | ... | ... | 24  |
| Mastitis                    | ... | ... | ... | ... | 7   |
| Pyelitis                    | ... | ... | ... | ... | 15  |
| Contact with infection      | ... | ... | ... | ... | 7   |
| Intercurrent illness        | ... | ... | ... | ... | 21  |
| No Definite cause assigned  | ... | ... | ... | ... | 35  |
| Total                       |     |     |     |     | 217 |

The number of cases in primipara was 82, and in multipara 135. The attendant at the delivery was as follows (excluding abortions) :—

|                          |    |                           |
|--------------------------|----|---------------------------|
| Midwife ... ..           | 60 | (3 with Medical Students) |
| Doctor and Midwife ...   | 79 |                           |
| Doctor and Handywoman    | 17 |                           |
| Hospital—                |    |                           |
| Maternity Hospital ...   | 35 |                           |
| Dudley Road Hospital ... | 1  |                           |
| Selly Oak Hospital ...   | 1  |                           |
| Queen's Hospital ...     | 1  |                           |

The Attendant booked was :—

|                                |    |
|--------------------------------|----|
| Midwife alone ... ..           | 82 |
| Doctor and midwife ... ..      | 64 |
| Doctor and Handywoman ... ..   | 17 |
| Maternity Hospital ... ..      | 24 |
| No definite information ... .. | 30 |

The character of the labour was normal in 133 cases, and instrumental (forceps deliveries) in 49. In 20 cases there was manual removal of the placenta. There were seven cases of version, 10 of induction, 4 craniotomies and one Cæsarian Section. There were 10 premature births, 23 abortions and 184 labours at term. Seven of the cases were illegitimate births. Of the 217 cases, 32 died, four of these deaths following abortion.

#### OPHTHALMIA NEONATORUM.

The incidence of ophthalmia, and the damage resulting from this infection, were heavier in 1928 than in any recent year. No less than 530 cases were reported as compared with 409 cases in 1927.

The reported cases of this disease, together with the results of treatment since 1917 are indicated in the following table :—

| Year.       | No. of cases reported. | No. of babies blind in :<br>One eye. | Both eyes | No. of babies with eyes otherwise impaired. |
|-------------|------------------------|--------------------------------------|-----------|---|
| 1917 ... .. | 237                    | 3                                    | 0         | 6   |
| 1918 ... .. | 228                    | 3                                    | 0         | 6   |
| 1919 ... .. | 282                    | 4                                    | 0         | 5   |
| 1920 ... .. | 444                    | ?                                    | ?         | 6   |
| 1921 ... .. | 427                    | 1                                    | 0         | 0   |
| 1922 ... .. | 484                    | 1                                    | 0         | 1   |
| 1923 ... .. | 433                    | 0                                    | 0         | 10  |
| 1924 ... .. | 413                    | 1                                    | 1         | 1   |
| 1925 ... .. | 335                    | 0                                    | 2         | 3   |
| 1926 ... .. | 395                    | 1                                    | 0         | 2   |
| 1927 ... .. | 409                    | 2                                    | 0         | 0   |
| 1928 ... .. | 530                    | 6                                    | 4         | 8   |

During the year 44 patients were admitted to the special ward in the Eye Hospital and 446 were treated as out-patients.

The increase in the number of cases reported was no doubt in some degree associated with better notification of the disease, but that this is only a partial explanation is shewn by the fact that not less than 18 infants had scarred eyes—the largest total damage for a considerable number of years past. Of the 18, 4 were rendered quite blind, 3 have grave impairment of vision in both eyes, 11 have permanent damage to one eye; of the last group the afflicted eye is completely blind in three cases and very defective in a fourth, the defect being slight in the remaining seven. Evidently some factor other than increased freedom of notification was responsible for a substantial part of the increase and in particular for the graver cases. This might conceivably be related to (a) decreased facilities for treatment, (b) lower standard of prophylactic treatment, (c) delay in treatment, (d) increased prevalence of gonorrhœa among child-bearing women, or in the alternative prevalence of non-specific infection producing a condition clinically indistinguishable from gonorrhœal ophthalmia.

There is no suggestion that any decrease occurred during the year in the provision for in-patient treatment. The majority of the patients received out-patient treatment until or unless there was clearly need for in-patient treatment. Under such circumstances there is always a risk that the mother may either fail to maintain treatment at home—and the application of treatment is far from easy—or else may fail to attend the out-patient department regularly. Early and prompt admission to a hospital bed for all but the mildest cases is therefore to be recommended.

So far as prophylactic treatment in maternity institutions, by midwives or by doctors, at the time of birth is concerned, there is no suggestion of a lower standard during 1928. Taking the 18 cases with damage to the eyesight (see attached table), in the two cases related to the Maternity Hospital, 1% silver nitrate, and in the two cases arising in relation to Heathfield Maternity Home, neo-protosil was given as a prophylactic. In the 10 cases attended by private midwives,  $\frac{1}{2}$ % silver nitrate was used at the time of birth. In the four cases attended by private doctors, the particulars as to the prophylactic cannot be given. Taking the whole of the 530 cases notified,  $\frac{1}{2}$ % silver nitrate was used for prophylactic treatment in 390, argyrol in 2, protosil in 4, the nature of the prophylactic was not known in 118, while in 16 no prophylactic was used.

As regards delay in treatment, the table indicates that in many of the cases there was considerable delay between the onset and the date of notification; and while this need not necessarily imply that treatment was commenced at too late a stage this was in fact the case in a number of instances. The cases of ophthalmia eventually developing into a very virulent infection were not infrequently insidious in their onset, appearing at first quite mild and giving rise to no alarm in the earliest stages. In three of the institutional cases the slight discharge present during the first few days of life appeared trivial and did not till a later stage manifest itself as grave infection which eventually damaged the eyesight. Two similar cases occurred in the practice of midwives, who by reason of the apparently trivial appearance of the condition did not summon medical help in the earliest stages.

In regard to the possibility of the increase of ophthalmia arising through an increase of gonorrhœal infection among child-bearing women, it is possible that a material proportion even of the serious cases are non-gonorrhœal in origin. Dr. Assinder, the pathologist to the Eye Hospital reports that in a large number of cases repeated examinations and cultures failed to yield the gonococcus, but that in these infection by a streptococcus was not of uncommon occurrence. At the same time it is of interest to note there was in fact a marked increase in the numbers both of men and women attending for the first time for treatment for gonorrhœa at the Clinics for Venereal Diseases.

The numbers are as follow:—

|      |     |     |     | New cases of gonorrhœa. |          |           | Total. |
|------|-----|-----|-----|-------------------------|----------|-----------|--------|
|      |     |     |     | Males.                  | Females. | Children. |        |
| 1924 | ... | ... | ... | 691                     | 73       | 5         | 769    |
| 1925 | ... | ... | ... | 667                     | 220      | 5         | 892    |
| 1926 | ... | ... | ... | 692                     | 185      | 7         | 884    |
| 1927 | ... | ... | ... | 660                     | 289      | 26        | 975    |
| 1928 | ... | ... | ... | 781                     | 348      | 29        | 1158   |

This increase is no doubt in part accounted for by increasing popularity of the clinics; but it is not impossible that the rise in the number of new cases may in fact represent an actual increase in this form of venereal disease. The absence of a corresponding rise in the number of cases of syphilis seeking treatment would tend to exclude the increasing use of the clinics as being the sole cause of the increase in gonorrhœal cases alone, or would at any rate suggest that the efficacy of treatment of syphilis had diminished the prevalence of the disease to the extent counterbalancing the freer use of the clinics, while the relatively ineffective treatment available for gonorrhœa had failed to decrease the prevalence to an extent neutralising the increase in attendances from more ready use of the clinics. No certain statement can thus be made as to whether the increase in ophthalmia reflects an increase in gonorrhœa in the general population, or whether the increase was dependent on a non-specific streptococcal infection arising from some unknown reason.

OPHTHALMIA NEONATORUM CASES, 1928.

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| No. of days after onset when notified.                           | No. of cases. | By whom notified.                        | When first seen after onset by doctor.           | By whom delivered.                      | No. of days after notification when admitted to hospital. |
|--|---------------|--|--|---|---|
| 1st day  | 1             | Little Bromwich Hospital.                | 1st day.   | Midwife.                                | 1st day.  |
| 2nd "  | 2             | Eye Hospital.                            | (1) 1st "<br>(2) 2nd "                           | Midwife.                                | (1) 7th "<br>(2) 5th "                                    |
| 3rd "  | 2             | (1) Eye Hospital.<br>(2) Private Doctor. | (1) 2nd "<br>(2) 1st "                           | (1) Midwife.<br>(2) Doctor & Handywoman | (1) 4th "<br>(2) 3rd "                                    |
| 4th "  | 1             | Private Doctor.                          | 1st "  | Doctor.                                 | 7th "   |
| 5th "  | 1             | Private Doctor.                          | 1st "  | Doctor & Handywoman.                    | 5th "   |
| 6th "  | 1             | Eye Hospital.                            | 1st "  | Midwife.                                | 5th "   |
| 7th "  | 4             | (1) Eye Hospital<br>(2) Private Doctor.  | (1) 1st "<br>(2) 2nd "<br>(3) 4th "<br>(4) 5th " | Midwife.                                | (1) 16th "<br>(2) 8th "<br>(3) 6th "<br>(4) 6th "         |
| 9th "  | 1             | Private Doctor.                          | 1st "  | Midwife.                                | 9th "   |
| 17th "   | 1             | Private Doctor.                          | 8th "  | Doctor & Handywoman.                    | 18th "  |
| Said to have had no discharge on leaving the Home 3 days before. |               |  |  |   |   |
| 17th day   | 1             | Eye Hospital.                            | 17th day.  | Heathfield Road Home.                   | 23rd "  |
| 21st "   | 1             | Eye Hospital.                            | 20th "   | Maternity Hospital.                     | 20th "  |
| 21st ", after birth  | 1             | Eye Hospital.                            | 20th "   | Maternity Hospital.                     | 6th "   |
| 33rd ", (Late)   | 1             | Eye Hospital.                            | 3rd "  | Heathfield Road Home.                   | 3rd "   |

TABLE I.  
*Vital Statistics during 1928 and previous years.*

| Year. | Population<br>Estimated<br>to middle<br>of each<br>Year. | BIRTHS. |       | DEATHS. |       | INFANT<br>MORTALITY. |       | DEATHS FROM |       |               |       |         |       |                |       |                          |       |
|-------|--|---------|-------|---------|-------|----------------------|-------|-------------|-------|---------------|-------|---------|-------|----------------|-------|--------------------------|-------|
|       |  | BIRTHS. |       | DEATHS. |       | INFANT<br>MORTALITY. |       | Influenza.  |       | Tuberculosis. |       | Cancer. |       | Heart Disease. |       | Respiratory<br>Diseases. |       |
|       |  | Number. | Rate. | Number. | Rate. | Deaths.              | Rate. | Number.     | Rate. | Number.       | Rate. | Number. | Rate. | Number.        | Rate. | Number.                  | Rate. |
| 1901  | 760,989  | 23,866  | 31.4  | 13,290  | 17.5  | 4,205                | 176   | 122         | .16   | 1,515         | 1.99  | 552     | .73   | 896            | 1.18  | 2,656                    | 3.50  |
| 1902  | 768,757  | 24,246* | 31.2  | 12,650* | 16.3  | 3,503*               | 144   | 97*         | .12   | 1,356*        | 1.75  | 530*    | .68   | 932*           | 1.20  | 2,517                    | 3.24  |
| 1903  | 776,604  | 23,956  | 30.9  | 12,224  | 15.8  | 3,525                | 147   | 79          | .10   | 1,362         | 1.76  | 592     | .76   | 905            | 1.17  | 2,269                    | 2.93  |
| 1904  | 784,532  | 24,260  | 31.0  | 13,882  | 17.7  | 4,346                | 179   | 104         | .13   | 1,369         | 1.75  | 578     | .74   | 943            | 1.20  | 2,635                    | 3.36  |
| 1905  | 792,540  | 22,939  | 29.0  | 11,948  | 15.1  | 3,224                | 141   | 107         | .14   | 1,316         | 1.67  | 643     | .81   | 889            | 1.12  | 2,310                    | 2.92  |
| 1906  | 800,631  | 23,484  | 29.4  | 12,737  | 15.9  | 3,682                | 157   | 123         | .15   | 1,203         | 1.51  | 664     | .83   | 956            | 1.20  | 2,239                    | 2.80  |
| 1907  | 808,803  | 23,233  | 28.8  | 12,356  | 15.3  | 3,084                | 133   | 128         | .16   | 1,241         | 1.54  | 645     | .80   | 1,041          | 1.29  | 2,475                    | 3.07  |
| 1908  | 817,060  | 23,986* | 29.1  | 12,596* | 15.3  | 3,124*               | 130   | 255*        | .31   | 1,308*        | 1.59  | 702*    | .85   | 1,028*         | 1.25  | 2,326                    | 2.82  |
| 1909  | 825,400  | 22,555  | 27.4  | 12,398  | 15.1  | 2,727                | 121   | 151         | .18   | 1,256         | 1.52  | 678     | .82   | 972            | 1.18  | 2,428                    | 2.95  |
| 1910  | 833,826  | 22,288  | 26.8  | 11,001  | 13.2  | 2,570                | 115   | 93          | .11   | 1,168         | 1.40  | 737     | .89   | 954            | 1.15  | 2,062                    | 2.48  |
| 1911  | 842,337  | 21,975  | 26.1  | 12,623  | 15.0  | 3,298                | 150   | 79          | .09   | 1,230         | 1.46  | 748     | .89   | 1,013          | 1.21  | 2,114                    | 2.51  |
| 1912  | 850,947  | 22,168  | 26.1  | 12,005  | 14.1  | 2,470                | 111   | 98          | .12   | 1,292         | 1.52  | 791     | .93   | 969            | 1.14  | 2,272                    | 2.68  |
| 1913  | 859,644  | 23,812* | 27.3  | 12,962* | 14.9  | 3,070*               | 129   | 112*        | .13   | 1,341*        | 1.53  | 893*    | 1.02  | 1,135*         | 1.30  | 2,170                    | 2.48  |
| 1914  | 882,534  | 23,207  | 26.4  | 13,026  | 14.8  | 2,839                | 122   | 142         | .16   | 1,293         | 1.47  | 773     | .88   | 1,301          | 1.48  | 2,369                    | 2.69  |
| 1915  | 891,234  | 21,187  | 23.8  | 12,816  | 14.4  | 2,490                | 118   | 146         | .16   | 1,377         | 1.55  | 885     | 1.00  | 1,338          | 1.51  | 2,506                    | 2.82  |
| 1916  | 895,678  | 20,618  | 23.1  | 12,081  | 13.5  | 2,142                | 104   | 146         | .16   | 1,324         | 1.48  | 897     | 1.00  | 1,362          | 1.52  | 2,322                    | 2.60  |
| 1917  | 900,000  | 17,706  | 19.7  | 11,274  | 12.6  | 1,791                | 101   | 98          | .11   | 1,405         | 1.56  | 912     | 1.02  | 1,369          | 1.53  | 1,888                    | 2.10  |
| 1918  | 870,000  | 16,840  | 19.4  | 13,175  | 15.2  | 1,674                | 99    | 2,172       | 2.50  | 1,385         | 1.60  | 883     | 1.02  | 1,241          | 1.43  | 2,473                    | 2.85  |
| 1919  | 910,000  | 19,335* | 20.9  | 12,000* | 13.0  | 1,630*               | 84    | 1,062*      | 1.15  | 1,188*        | 1.28  | 935*    | 1.01  | 1,258*         | 1.36  | 2,466*                   | 2.67  |
| 1920  | 910,000  | 25,069  | 27.6  | 11,409  | 12.6  | 2,072                | 83    | 421         | .46   | 1,001         | 1.10  | 1,014   | 1.12  | 1,232          | 1.36  | 2,232                    | 2.46  |
| 1921  | 919,683  | 22,134  | 24.1  | 10,361  | 11.3  | 1,838                | 83    | 134         | .15   | 1,035         | 1.13  | 1,020   | 1.12  | 1,181          | 1.29  | 1,857                    | 2.02  |
| 1922  | 927,844  | 19,850  | 21.5  | 11,212  | 12.1  | 1,705                | 86    | 442         | .48   | 1,049         | 1.13  | 1,090   | 1.18  | 1,306          | 1.41  | 2,206                    | 2.38  |
| 1923  | 936,079  | 19,069  | 20.4  | 10,248  | 11.0  | 1,370                | 72    | 264         | .28   | 1,006         | 1.08  | 1,092   | 1.17  | 1,221          | 1.31  | 1,849                    | 1.98  |
| 1924  | 944,386  | 18,390* | 19.2  | 11,181* | 11.6  | 1,518*               | 83    | 375*        | .39   | 1,055*        | 1.10  | 1,251*  | 1.30  | 1,359*         | 1.42  | 2,061*                   | 2.15  |
| 1925  | 952,766  | 17,836  | 18.8  | 11,102  | 11.7  | 1,389                | 78    | 370         | .39   | 1,083         | 1.14  | 1,204   | 1.27  | 1,441          | 1.52  | 1,872                    | 1.97  |
| 1926  | 961,222  | 17,932  | 18.7  | 10,847  | 11.3  | 1,301                | 73    | 260         | .27   | 1,024         | 1.06  | 1,205   | 1.26  | 1,636          | 1.71  | 1,799                    | 1.88  |
| 1927  | 969,752  | 17,252  | 17.8  | 11,171  | 11.6  | 1,299                | 75    | 399         | .41   | 1,017         | 1.05  | 1,313   | 1.36  | 1,719          | 1.78  | 1,825                    | 1.89  |
| 1928  | 976,500  | 17,222  | 17.6  | 10,667  | 10.9  | 1,117                | 65    | 130         | .13   | 965           | 0.99  | 1,321   | 1.35  | 1,732          | 1.77  | 1,525                    | 1.56  |

\* 53 Weeks.

TABLE II.

*Causes of, and Ages at Death during the Year ending December 31st, 1928.*

| CAUSE OF DEATH.                          | AGES. |    |    |    |    |    |     |     |     |     |     |     |     |     |     |     |     | Males | Fe-<br>males | Per-<br>sons. |
|--|-------|----|----|----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-------|--------------|---------------|
|  | 0-    | 1- | 2- | 3- | 4- | 5- | 10- | 15- | 20- | 25- | 35- | 45- | 55- | 65- | 75- | 85- |     |       |              |               |
| I.—GENERAL DISEASES.                     |       |    |    |    |    |    |     |     |     |     |     |     |     |     |     |     |     |       |              |               |
| Enteric Fever .....                      | —     | —  | —  | —  | —  | —  | —   | —   | 1   | —   | 1   | 1   | —   | —   | —   | —   | 1   | 2     | 3            |               |
| Typhus Fever .....                       | —     | —  | —  | —  | —  | —  | —   | —   | —   | —   | —   | —   | —   | —   | —   | —   | —   | —     | —            |               |
| Relapsing Fever .....                    | —     | —  | —  | —  | —  | —  | —   | —   | —   | —   | —   | —   | —   | —   | —   | —   | —   | —     | —            |               |
| Mediterranean Fever .....                | —     | —  | —  | —  | —  | —  | —   | —   | —   | —   | —   | —   | —   | —   | —   | —   | —   | —     | —            |               |
| Malaria .....                            | —     | —  | —  | —  | —  | —  | —   | 1   | —   | —   | 1   | —   | 1   | —   | —   | —   | 3   | —     | 3            |               |
| Smallpox .....                           | —     | —  | —  | —  | —  | —  | —   | —   | —   | —   | —   | —   | —   | 1   | —   | —   | 1   | —     | 1            |               |
| Measles .....                            | 13    | 17 | 4  | 2  | 2  | 3  | —   | —   | —   | —   | —   | —   | —   | —   | —   | —   | 23  | 18    | 41           |               |
| Scarlet Fever .....                      | —     | 2  | —  | 1  | —  | 1  | —   | —   | 1   | —   | —   | —   | —   | —   | —   | —   | 2   | 3     | 5            |               |
| Whooping Cough .....                     | 75    | 54 | 17 | 9  | 4  | 4  | —   | —   | —   | —   | —   | —   | —   | —   | —   | —   | 70  | 93    | 163          |               |
| Diphtheria .....                         | 2     | 4  | 6  | 6  | 8  | 32 | 6   | 1   | —   | —   | 1   | 2   | 2   | —   | —   | —   | 27  | 43    | 70           |               |
| Influenza .....                          | 4     | 3  | 3  | 1  | —  | 2  | 2   | 4   | 3   | 10  | 21  | 21  | 25  | 17  | 12  | 2   | 74  | 56    | 130          |               |
| Miliary Fever .....                      | —     | —  | —  | —  | —  | —  | —   | —   | —   | —   | —   | —   | —   | —   | —   | —   | —   | —     | —            |               |
| Mumps .....                              | —     | —  | —  | —  | —  | —  | —   | —   | —   | —   | —   | —   | —   | —   | —   | —   | —   | —     | —            |               |
| Asiatic Cholera .....                    | —     | —  | —  | —  | —  | —  | —   | —   | —   | —   | —   | —   | —   | —   | —   | —   | —   | —     | —            |               |
| Cholera Nostras .....                    | —     | —  | —  | —  | —  | —  | —   | —   | —   | —   | —   | —   | —   | —   | —   | —   | —   | —     | —            |               |
| Dysentery .....                          | —     | —  | —  | —  | —  | —  | —   | —   | —   | —   | —   | —   | —   | —   | —   | —   | —   | —     | —            |               |
| Plague .....                             | —     | —  | —  | —  | —  | —  | —   | —   | —   | —   | —   | —   | —   | —   | —   | —   | —   | —     | —            |               |
| Yellow Fever .....                       | —     | —  | —  | —  | —  | —  | —   | —   | —   | —   | —   | —   | —   | —   | —   | —   | —   | —     | —            |               |
| Spirochaetosis .....                     | —     | —  | —  | —  | —  | —  | —   | —   | —   | —   | —   | —   | —   | —   | —   | —   | —   | —     | —            |               |
| Leprosy .....                            | —     | —  | —  | —  | —  | —  | —   | —   | —   | —   | —   | —   | —   | —   | —   | —   | —   | —     | —            |               |
| Erysipelas .....                         | 5     | —  | —  | —  | —  | —  | —   | —   | —   | 3   | 1   | 3   | 1   | 3   | 1   | 1   | 10  | 8     | 18           |               |
| Ac. Poliomyelitis .....                  | —     | —  | —  | —  | —  | —  | —   | —   | —   | 1   | —   | —   | —   | —   | —   | —   | 1   | —     | 1            |               |
| Polioencephalitis .....                  | —     | —  | —  | —  | —  | —  | —   | —   | —   | —   | —   | —   | —   | —   | —   | —   | —   | —     | —            |               |
| Encephalitis Lethargica .....            | —     | 1  | 1  | 1  | —  | 2  | 2   | 3   | 1   | 5   | 4   | 4   | 1   | 6   | 1   | —   | 19  | 13    | 32           |               |
| Meningococcal Meningitis .....           | 3     | 2  | —  | —  | —  | 1  | 1   | —   | 1   | —   | 1   | —   | —   | —   | —   | —   | 4   | 5     | 9            |               |
| Other Epidemic Diseases .....            | 1     | —  | —  | —  | —  | —  | —   | —   | —   | —   | —   | —   | —   | 2   | —   | —   | 1   | 2     | 3            |               |
| Glanders .....                           | —     | —  | —  | —  | —  | —  | —   | —   | —   | —   | —   | —   | —   | —   | —   | —   | —   | —     | —            |               |
| Anthrax .....                            | —     | —  | —  | —  | —  | —  | —   | —   | —   | —   | —   | —   | —   | —   | —   | —   | —   | —     | —            |               |
| Rabies .....                             | —     | —  | —  | —  | —  | —  | —   | —   | —   | —   | —   | —   | —   | —   | —   | —   | —   | —     | —            |               |
| Tetanus .....                            | —     | —  | —  | —  | —  | —  | —   | —   | —   | —   | —   | —   | —   | —   | —   | —   | —   | —     | —            |               |
| Mycoses .....                            | —     | —  | —  | —  | —  | —  | —   | —   | —   | 1   | —   | —   | —   | —   | —   | —   | —   | 1     | 1            |               |
| Tuberculosis :—                          |       |    |    |    |    |    |     |     |     |     |     |     |     |     |     |     |     |       |              |               |
| Respiratory System.....                  | 5     | 3  | 1  | 3  | —  | 3  | 7   | 63  | 94  | 176 | 192 | 182 | 85  | 23  | 3   | —   | 510 | 330   | 840          |               |
| Nervous System .....                     | 10    | 13 | 5  | 4  | —  | 12 | 1   | 1   | 1   | 3   | 3   | 2   | —   | —   | —   | —   | 35  | 20    | 55           |               |
| Intestines, Peritoneum .....             | —     | 1  | —  | —  | —  | —  | 1   | 1   | 2   | 2   | 2   | 2   | 1   | —   | —   | —   | 6   | 6     | 12           |               |
| Vertebral Column .....                   | —     | —  | —  | —  | —  | —  | —   | 2   | 4   | 1   | —   | 5   | 2   | —   | —   | —   | 6   | 8     | 14           |               |
| Joints .....                             | —     | —  | —  | —  | —  | 1  | 1   | —   | 1   | —   | —   | —   | —   | —   | —   | —   | 3   | —     | 3            |               |
| Other Organs .....                       | —     | —  | —  | —  | —  | —  | 2   | 2   | 2   | 1   | 1   | 1   | 2   | 2   | —   | —   | 4   | 7     | 11           |               |
| Disseminated .....                       | 4     | 2  | 1  | —  | 1  | 4  | 2   | 3   | 4   | 3   | 1   | 3   | 2   | —   | —   | —   | 20  | 10    | 30           |               |
| Syphilis .....                           | 7     | —  | —  | —  | —  | —  | 1   | —   | 1   | 4   | 15  | 18  | 14  | 3   | 1   | —   | 44  | 20    | 64           |               |
| Soft Chancre .....                       | —     | —  | —  | —  | —  | —  | —   | —   | —   | —   | —   | —   | —   | —   | —   | —   | —   | —     | —            |               |
| Gonococcal Infection .....               | 1     | —  | —  | —  | —  | —  | —   | —   | —   | —   | —   | —   | —   | —   | —   | —   | 1   | —     | 1            |               |
| Purulent Infection, Septicæmia .....     | 2     | 4  | 1  | —  | 1  | 2  | 2   | —   | 1   | 1   | 3   | 2   | 5   | 3   | —   | 1   | 14  | 14    | 28           |               |
| Other Infectious Diseases .....          | —     | —  | —  | —  | —  | —  | —   | —   | —   | —   | —   | —   | —   | —   | —   | —   | —   | —     | —            |               |
| II.—GENERAL DISEASES NOT INCLUDED ABOVE. |       |    |    |    |    |    |     |     |     |     |     |     |     |     |     |     |     |       |              |               |
| Cancer :—                                |       |    |    |    |    |    |     |     |     |     |     |     |     |     |     |     |     |       |              |               |
| Buccal Cavity .....                      | —     | —  | —  | —  | —  | —  | —   | —   | —   | —   | 15  | 34  | 28  | 6   | 1   | 71  | 13  | 84    |              |               |
| Phar. Œsop. stomach, liver, etc. ....    | —     | —  | —  | —  | —  | —  | —   | 1   | —   | 6   | 17  | 56  | 135 | 106 | 41  | 4   | 211 | 155   | 366          |               |
| Peritoneum, Intestines .....             | —     | —  | —  | —  | —  | —  | —   | 1   | 2   | 3   | 15  | 40  | 88  | 102 | 44  | 8   | 148 | 155   | 303          |               |
| Female Organs .....                      | —     | —  | —  | —  | —  | —  | —   | —   | —   | 3   | 25  | 36  | 33  | 27  | 16  | 2   | —   | 142   | 142          |               |
| Breast .....                             | —     | —  | —  | —  | —  | —  | —   | —   | —   | 2   | 16  | 45  | 41  | 28  | 16  | 2   | 1   | 149   | 150          |               |
| Skin.....                                | —     | —  | —  | —  | —  | —  | —   | —   | —   | —   | 2   | 2   | 3   | 3   | 1   | 1   | 7   | 5     | 12           |               |
| Other Organs .....                       | 1     | 1  | 2  | —  | 1  | 3  | —   | 6   | 2   | 12  | 19  | 46  | 65  | 74  | 27  | 5   | 181 | 83    | 264          |               |
| Non-Malignant Tumours .....              | 1     | —  | —  | —  | 1  | —  | —   | —   | —   | 2   | —   | 10  | 3   | 4   | 2   | —   | 10  | 13    | 23           |               |
| Rheumatic Fever .....                    | —     | —  | —  | 2  | —  | 11 | 6   | 5   | 10  | 5   | 5   | 9   | 4   | 3   | 1   | —   | 25  | 36    | 61           |               |
| Chronic Rheumatism .....                 | —     | —  | —  | —  | —  | —  | —   | —   | —   | —   | 3   | 5   | 16  | 30  | 16  | 1   | 33  | 38    | 71           |               |
| Scurvy .....                             | 1     | —  | —  | —  | —  | —  | —   | —   | —   | —   | —   | —   | —   | —   | —   | —   | 1   | —     | 1            |               |
| Pellagra .....                           | —     | —  | —  | —  | —  | —  | —   | —   | —   | —   | —   | —   | —   | —   | —   | —   | —   | —     | —            |               |
| Beri-Beri .....                          | —     | —  | —  | —  | —  | —  | —   | —   | —   | —   | —   | —   | —   | —   | —   | —   | —   | —     | —            |               |
| Rickets .....                            | 3     | 2  | 2  | 1  | —  | —  | —   | —   | —   | 1   | —   | —   | —   | —   | —   | —   | 4   | 5     | 9            |               |
| Diabetes .....                           | —     | —  | —  | —  | —  | —  | 1   | 2   | —   | 5   | 2   | 9   | 22  | 39  | 7   | 1   | 40  | 48    | 88           |               |

TABLE II.—Continued.

| CAUSE OF DEATH.                                   | AGES. |    |    |    |    |    |     |     |     |     |     |     |     |     |     |     |     | Males | Fe-<br>males | Per-<br>sons. |
|---|-------|----|----|----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-------|--------------|---------------|
|   | 0-    | 1- | 2- | 3- | 4- | 5- | 10- | 15- | 20- | 25- | 35- | 45- | 55- | 65- | 75- | 85- |     |       |              |               |
| Anaemia, Chlorosis .....                          | 2     | 1  | —  | —  | —  | —  | 1   | —   | —   | 1   | —   | 6   | 12  | 6   | 4   | —   | 12  | 21    | 33           |               |
| Diseases of Pituitary Gland .....                 | —     | —  | —  | —  | —  | —  | —   | —   | —   | —   | —   | 2   | —   | —   | —   | —   | —   | 2     | 2            |               |
| Diseases of Thyroid Gland .....                   | 1     | —  | 1  | —  | —  | —  | —   | —   | 3   | 5   | 7   | 8   | 5   | 1   | 1   | —   | 3   | 29    | 32           |               |
| Diseases of the Parathyroid Glands .....          | —     | —  | —  | —  | —  | —  | —   | —   | —   | —   | —   | —   | —   | —   | —   | —   | —   | —     | —            |               |
| Diseases of Thymus .....                          | 1     | 2  | —  | —  | 1  | —  | —   | 3   | —   | —   | —   | —   | —   | —   | —   | —   | 7   | —     | 7            |               |
| Diseases of Adrenals .....                        | —     | —  | —  | —  | —  | —  | —   | —   | —   | —   | —   | 1   | 1   | 1   | —   | —   | 3   | —     | 3            |               |
| Diseases of Spleen .....                          | —     | —  | —  | —  | 1  | —  | —   | —   | —   | —   | —   | 1   | 1   | —   | —   | —   | 3   | —     | 3            |               |
| Leukæmia, Lymphadenoma .....                      | —     | 1  | —  | —  | 1  | 2  | —   | 2   | 2   | 4   | —   | 5   | 1   | —   | —   | —   | 12  | 6     | 18           |               |
| Alcoholism .....                                  | —     | —  | —  | —  | —  | —  | —   | —   | —   | —   | —   | —   | —   | —   | —   | —   | —   | —     | —            |               |
| Chronic Poisoning by Minerals .....               | —     | —  | —  | —  | —  | —  | —   | —   | —   | —   | —   | 1   | 1   | —   | —   | —   | 2   | —     | 2            |               |
| Chronic Poisoning by Organic Sub. ....            | —     | —  | —  | —  | —  | —  | —   | —   | —   | —   | —   | —   | —   | —   | —   | —   | —   | —     | —            |               |
| Other General Diseases .....                      | 7     | —  | —  | —  | —  | —  | —   | 1   | 1   | 1   | 1   | —   | 2   | —   | —   | —   | 9   | 4     | 13           |               |
| III.—NERVOUS SYSTEM AND SENSE ORGANS.             |       |    |    |    |    |    |     |     |     |     |     |     |     |     |     |     |     |       |              |               |
| Encephalitis ... ..                               | 1     | —  | —  | —  | —  | —  | —   | 1   | —   | —   | 1   | —   | —   | 1   | —   | —   | 2   | 2     | 4            |               |
| Meningitis ... ..                                 | 11    | 3  | 2  | —  | 1  | 4  | —   | —   | —   | —   | —   | 1   | 2   | —   | —   | —   | 16  | 8     | 24           |               |
| Tabes Dorsalis ... ..                             | —     | —  | —  | —  | —  | —  | —   | —   | —   | —   | —   | 2   | 5   | 4   | —   | —   | 9   | 2     | 11           |               |
| Other Dis., Spinal Cord ... ..                    | —     | —  | —  | —  | —  | —  | —   | 1   | —   | —   | 3   | 5   | 5   | 3   | 2   | 1   | 12  | 8     | 20           |               |
| Cerebral Hæmorrhage, Apoplexy, etc. ....          | —     | —  | —  | —  | —  | —  | —   | 1   | —   | 3   | 8   | 65  | 121 | 195 | 142 | 23  | 228 | 330   | 558          |               |
| Paralysis (of unstated origin) ... ..             | —     | —  | —  | —  | —  | —  | 1   | 1   | —   | —   | 1   | 2   | 4   | 9   | 14  | 2   | 13  | 21    | 34           |               |
| General Paralysis of Insane ... ..                | —     | —  | —  | —  | —  | —  | —   | —   | —   | 2   | 5   | 9   | 6   | 2   | 2   | —   | 18  | 8     | 26           |               |
| Other Mental Alienation ... ..                    | —     | —  | —  | —  | —  | —  | —   | —   | —   | —   | 1   | 3   | 2   | 4   | 2   | —   | 6   | 6     | 12           |               |
| Epilepsy ... ..                                   | —     | —  | 1  | —  | —  | 2  | 2   | 5   | 4   | 11  | 10  | 12  | 9   | 11  | 2   | —   | 34  | 35    | 69           |               |
| Convulsions (5 and over) ... ..                   | —     | —  | —  | —  | —  | —  | —   | —   | —   | —   | —   | —   | —   | —   | —   | —   | —   | —     | —            |               |
| Convulsions (under 5)... ..                       | 23    | 3  | 1  | —  | —  | —  | —   | —   | —   | —   | —   | —   | —   | —   | —   | —   | 21  | 6     | 27           |               |
| Chorea ... ..                                     | —     | —  | —  | —  | —  | —  | —   | —   | —   | 1   | —   | —   | —   | 1   | —   | —   | 1   | 1     | 2            |               |
| Hysteria, Neuritis ... ..                         | —     | —  | —  | —  | —  | —  | —   | —   | —   | —   | 1   | 2   | 2   | 1   | 2   | —   | 3   | 5     | 8            |               |
| Cerebral Softening ... ..                         | —     | —  | —  | —  | —  | —  | —   | —   | —   | —   | —   | —   | 3   | 1   | 1   | 2   | 2   | 5     | 7            |               |
| Other Diseases of Nervous System ... ..           | 1     | 1  | —  | —  | 2  | 2  | 3   | 2   | 1   | 7   | 11  | 9   | 12  | 24  | 7   | —   | 43  | 39    | 82           |               |
| Diseases of Eyes and Annexa ... ..                | —     | —  | —  | —  | 1  | —  | —   | —   | —   | —   | —   | —   | —   | —   | —   | —   | 1   | —     | 1            |               |
| Diseases of Ear:—                                 |       |    |    |    |    |    |     |     |     |     |     |     |     |     |     |     |     |       |              |               |
| 1. Mastoid Disease ... ..                         | 1     | 1  | —  | —  | 1  | 3  | 2   | 1   | 2   | 2   | 1   | —   | —   | 1   | —   | —   | 9   | 6     | 15           |               |
| 2. Other Diseases of Ears ... ..                  | 4     | 2  | —  | —  | —  | 2  | 2   | 1   | 4   | —   | 2   | 1   | 2   | —   | —   | —   | 8   | 12    | 20           |               |
| IV.—CIRCULATORY SYSTEM.                           |       |    |    |    |    |    |     |     |     |     |     |     |     |     |     |     |     |       |              |               |
| Pericarditis ... ..                               | —     | 2  | 1  | —  | 1  | 1  | —   | —   | —   | —   | —   | 1   | 2   | 1   | —   | —   | 8   | 1     | 9            |               |
| Acute Endocarditis and Myocarditis ... ..         | —     | —  | —  | —  | —  | —  | 6   | 4   | 5   | 7   | 8   | 4   | 2   | —   | 1   | —   | 18  | 19    | 37           |               |
| Angina Pectoris ... ..                            | —     | —  | —  | —  | —  | —  | —   | —   | —   | —   | —   | 4   | 10  | 11  | 1   | —   | 19  | 7     | 26           |               |
| Other Dis. of Heart ... ..                        | —     | —  | —  | —  | —  | 4  | 11  | 12  | 14  | 36  | 72  | 165 | 322 | 500 | 435 | 89  | 780 | 880   | 1660         |               |
| Disease of Arteries ... ..                        | —     | —  | —  | —  | —  | —  | —   | —   | —   | —   | 13  | 54  | 117 | 190 | 164 | 30  | 334 | 234   | 568          |               |
| Embolism, Throm. (not Cerebral). ... ..           | —     | —  | —  | —  | —  | —  | —   | —   | —   | —   | —   | 3   | 4   | 2   | 2   | —   | 3   | 8     | 11           |               |
| Diseases of Veins ... ..                          | —     | —  | —  | —  | —  | —  | —   | —   | —   | 1   | —   | 6   | 4   | 7   | —   | —   | 9   | 9     | 18           |               |
| Diseases of Lymph. System ... ..                  | —     | 1  | —  | —  | —  | —  | —   | —   | —   | —   | —   | —   | —   | —   | —   | —   | —   | 1     | 1            |               |
| Hæmorrhage (cause not stated) ... ..              | —     | —  | —  | —  | —  | —  | —   | —   | —   | —   | —   | —   | —   | —   | —   | —   | —   | —     | —            |               |
| Other Dis. of Circulatory System ... ..           | —     | —  | —  | —  | —  | —  | —   | —   | —   | —   | 1   | 1   | 9   | 9   | 3   | —   | 11  | 12    | 23           |               |
| V.—RESPIRATORY SYSTEM.                            |       |    |    |    |    |    |     |     |     |     |     |     |     |     |     |     |     |       |              |               |
| Diseases of Nasal Fossæ ... ..                    | 1     | —  | —  | —  | —  | —  | 1   | 1   | 3   | 2   | 1   | 4   | 2   | 1   | —   | —   | 9   | 7     | 16           |               |
| Diseases of Larynx ... ..                         | 1     | —  | —  | —  | —  | —  | —   | —   | —   | —   | —   | —   | —   | —   | —   | —   | —   | 1     | 1            |               |
| Bronchitis ... ..                                 | 27    | 5  | —  | 1  | —  | 1  | —   | 1   | —   | 5   | 13  | 37  | 63  | 133 | 186 | 40  | 257 | 255   | 512          |               |
| Bronchopneumonia ... ..                           | 128   | 59 | 14 | 12 | —  | 9  | 1   | 5   | 5   | 10  | 17  | 40  | 46  | 56  | 47  | 7   | 261 | 195   | 456          |               |
| Lobar Pneumonia (or type not stated) ...          | 22    | 10 | 6  | 3  | 1  | 9  | 4   | 12  | 21  | 28  | 78  | 87  | 77  | 53  | 21  | 5   | 290 | 147   | 437          |               |
| Pleurisy ... ..                                   | —     | —  | —  | 1  | —  | —  | 1   | 1   | —   | 4   | 2   | 2   | 5   | 5   | 1   | —   | 18  | 4     | 22           |               |
| Congestion and Hæmorrhagic Infarct of Lung ... .. | 1     | —  | —  | —  | —  | —  | —   | —   | —   | —   | —   | —   | —   | 2   | 8   | 3   | 4   | 10    | 14           |               |
| Gangrene of Lung ... ..                           | —     | —  | —  | —  | —  | —  | —   | —   | —   | —   | —   | —   | —   | —   | —   | —   | —   | —     | —            |               |
| Asthma ... ..                                     | —     | —  | —  | —  | —  | —  | —   | —   | —   | —   | 5   | 12  | 5   | 16  | 5   | 1   | 20  | 24    | 44           |               |
| Pulmonary Emphysema ... ..                        | —     | —  | —  | —  | —  | —  | —   | —   | —   | —   | —   | —   | 3   | 2   | —   | —   | 2   | 3     | 5            |               |
| Other Dis. of Respiratory System ... ..           | —     | —  | —  | —  | —  | —  | 1   | —   | —   | —   | 6   | 4   | 5   | 1   | —   | 1   | 14  | 4     | 18           |               |
| VI.—DIGESTIVE SYSTEM.                             |       |    |    |    |    |    |     |     |     |     |     |     |     |     |     |     |     |       |              |               |
| Diseases of Buccal Cavity ... ..                  | 2     | —  | 2  | —  | —  | —  | 1   | —   | 1   | 2   | —   | 1   | 3   | 2   | —   | 1   | 7   | 8     | 15           |               |
| Diseases of Pharynx and Tonsils ... ..            | —     | 1  | —  | —  | —  | 2  | 1   | —   | 2   | 2   | —   | —   | 3   | 1   | 1   | —   | 9   | 4     | 13           |               |

TABLE II.—Continued.

| CAUSE OF DEATH.                        | AGES. |    |    |    |    |    |     |     |     |     |     |     |     |     |     |     |     | Males | Fe-<br>males | Per-<br>sons |
|--|-------|----|----|----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-------|--------------|--------------|
|  | 0-    | 1- | 2- | 3- | 4- | 5- | 10- | 15- | 20- | 25- | 35- | 45- | 55- | 65- | 75- | 85- |     |       |              |              |
| Diseases of the Œsophagus ...          | —     | —  | —  | —  | —  | —  | —   | —   | —   | —   | 1   | —   | —   | —   | —   | —   | —   | 1     | 1            |              |
| Ulcer of Stomach and Duodenum ...      | —     | —  | —  | —  | —  | —  | —   | —   | —   | 11  | 14  | 31  | 24  | 19  | 2   | —   | 69  | 32    | 101          |              |
| Other Dis. of Stomach ...              | 4     | —  | —  | —  | —  | 1  | —   | —   | —   | —   | 1   | 5   | 1   | 10  | 12  | 3   | 14  | 23    | 37           |              |
| Diarrhoea, Enteritis ...               | 139   | 22 | 4  | 1  | 3  | 2  | 1   | 1   | 1   | 4   | 1   | 3   | 4   | 9   | 8   | 2   | 117 | 88    | 205          |              |
| Ankylostomiasis ...                    | —     | —  | —  | —  | —  | —  | —   | —   | —   | —   | —   | —   | —   | —   | —   | —   | —   | —     | —            |              |
| Other Intestinal Parasites ...         | —     | —  | —  | —  | —  | —  | —   | —   | —   | —   | —   | —   | —   | —   | —   | —   | —   | —     | —            |              |
| Appendicitis and Typhlitis ...         | —     | 1  | 3  | 2  | 2  | 8  | 5   | 8   | 9   | 9   | 5   | 13  | 7   | 6   | 2   | —   | 51  | 29    | 80           |              |
| Hernia, Intestinal Obstruction ...     | 9     | 2  | —  | —  | 1  | —  | 1   | 1   | 1   | 1   | 7   | 9   | 9   | 12  | 18  | 5   | 36  | 40    | 76           |              |
| Other Dis. of Intestines ...           | 1     | —  | —  | —  | —  | 1  | —   | —   | —   | —   | 1   | 3   | 1   | 2   | —   | —   | 6   | 3     | 9            |              |
| Acute Yellow Atrophy of Liver ...      | —     | —  | —  | —  | —  | —  | —   | —   | 1   | 1   | —   | —   | 1   | —   | —   | —   | 1   | 2     | 3            |              |
| Hydatid of Liver ...                   | —     | —  | —  | —  | —  | —  | —   | —   | —   | —   | —   | —   | —   | —   | —   | —   | —   | —     | —            |              |
| Cirrhosis of Liver ...                 | —     | —  | —  | —  | —  | 1  | —   | —   | 1   | —   | 2   | 14  | 17  | 13  | 4   | —   | 31  | 21    | 52           |              |
| Biliary Calculi ...                    | —     | —  | —  | —  | —  | —  | —   | —   | —   | —   | 1   | 1   | 9   | 3   | 5   | —   | 6   | 13    | 19           |              |
| Other Dis. of Liver ...                | —     | —  | —  | —  | —  | —  | —   | —   | —   | 1   | 2   | 6   | 4   | 11  | 6   | 1   | 7   | 24    | 31           |              |
| Diseases of Pancreas ...               | —     | —  | —  | —  | —  | 1  | —   | —   | —   | —   | 2   | 1   | 1   | 1   | —   | —   | 4   | 2     | 6            |              |
| Peritonitis (cause unstated) ...       | —     | —  | —  | —  | 1  | 3  | 1   | —   | —   | 1   | 1   | 1   | 1   | 2   | —   | —   | 2   | 9     | 11           |              |
| Other Diseases of Digestive System...  | —     | —  | —  | —  | —  | —  | —   | —   | —   | —   | —   | —   | —   | —   | —   | —   | —   | —     | —            |              |
| VII.—GENITO-URINARY SYSTEM.            |       |    |    |    |    |    |     |     |     |     |     |     |     |     |     |     |     |       |              |              |
| Acute Nephritis ...                    | 3     | —  | —  | —  | —  | 1  | —   | 2   | 3   | 3   | 1   | 2   | 5   | 3   | —   | —   | 10  | 13    | 23           |              |
| Chronic Nephritis ...                  | —     | —  | 1  | 1  | 1  | 2  | 4   | 5   | 3   | 11  | 27  | 61  | 60  | 66  | 51  | 8   | 145 | 156   | 301          |              |
| Chyluria ...                           | —     | —  | —  | —  | —  | —  | —   | —   | —   | —   | —   | —   | —   | —   | —   | —   | —   | —     | —            |              |
| Other Dis. of Kidneys and Annexa ...   | 2     | —  | —  | —  | —  | —  | —   | —   | —   | 2   | 1   | 2   | 2   | 9   | 4   | 1   | 10  | 13    | 23           |              |
| Calculi. of Urinary Passages ...       | —     | —  | —  | —  | —  | 1  | —   | —   | —   | —   | 1   | —   | —   | 1   | —   | —   | 2   | 1     | 3            |              |
| Diseases of Bladder ...                | —     | —  | —  | —  | —  | —  | —   | —   | —   | —   | 1   | 2   | —   | 8   | 12  | 1   | 18  | 6     | 24           |              |
| Diseases of Urethra, etc. ...          | —     | —  | —  | —  | —  | —  | —   | —   | —   | —   | —   | 2   | 5   | 2   | 1   | —   | 10  | —     | 10           |              |
| Diseases of Prostate ...               | —     | —  | —  | —  | —  | —  | —   | —   | —   | —   | —   | —   | 12  | 24  | 18  | 2   | 55  | —     | 56           |              |
| Non-Venereal Dis. of Male Organs ...   | —     | —  | —  | —  | —  | —  | —   | —   | —   | —   | 1   | —   | —   | 1   | —   | —   | 2   | —     | 2            |              |
| Cysts & Tumours of Ovary(non-malig.)   | —     | —  | —  | —  | —  | —  | —   | —   | 1   | —   | 2   | —   | 1   | —   | 1   | —   | —   | 5     | 5            |              |
| Salpingitis & Pelvic Abcess in Females | —     | —  | —  | —  | —  | 1  | —   | —   | —   | 1   | —   | 1   | —   | 1   | —   | —   | —   | 4     | 4            |              |
| Tumour of Uterus (non-malig.) ...      | —     | —  | —  | —  | —  | —  | —   | —   | —   | —   | 3   | 5   | —   | —   | —   | 1   | —   | 9     | 9            |              |
| Non-Puerperal Uterine Haemorrhage      | —     | —  | —  | —  | —  | —  | —   | —   | —   | —   | —   | —   | —   | —   | —   | —   | —   | —     | —            |              |
| Other Diseases of Female Organs ...    | —     | —  | —  | —  | —  | —  | —   | —   | —   | —   | 2   | 2   | 1   | 1   | 1   | —   | —   | 7     | 7            |              |
| Non-Puerperal Diseases of Breast ...   | —     | —  | —  | —  | —  | —  | —   | —   | —   | —   | —   | —   | —   | —   | —   | —   | —   | —     | —            |              |
| VIII.—THE PUERPERAL STATE.             |       |    |    |    |    |    |     |     |     |     |     |     |     |     |     |     |     |       |              |              |
| Accidents of Pregnancy ...             | —     | —  | —  | —  | —  | —  | —   | —   | —   | 3   | 3   | —   | —   | —   | —   | —   | —   | 6     | 6            |              |
| Puerperal Haemorrhage ...              | —     | —  | —  | —  | —  | —  | —   | —   | —   | 1   | 4   | 4   | 1   | —   | —   | —   | —   | 10    | 10           |              |
| Other Accidents of Childbirth ...      | —     | —  | —  | —  | —  | —  | —   | —   | —   | 1   | —   | 4   | —   | —   | —   | —   | —   | 5     | 5            |              |
| Puerperal Sepsis ...                   | —     | —  | —  | —  | —  | —  | —   | 1   | 1   | 16  | 13  | 1   | —   | —   | —   | —   | —   | 32    | 32           |              |
| Puerperal Phlegmasia Alba Dolens,      | —     | —  | —  | —  | —  | —  | —   | —   | —   | —   | —   | —   | —   | —   | —   | —   | —   | —     | —            |              |
| Embolism ...                           | —     | —  | —  | —  | —  | —  | —   | —   | 2   | 1   | —   | 1   | —   | —   | —   | —   | —   | 4     | 4            |              |
| Puerperal Albuminuria & Convulsions    | —     | —  | —  | —  | —  | —  | —   | —   | —   | 1   | 6   | —   | —   | —   | —   | —   | —   | 7     | 7            |              |
| Childbirth not in other Headings       | —     | —  | —  | —  | —  | —  | —   | —   | —   | —   | —   | —   | —   | —   | —   | —   | —   | —     | —            |              |
| (Puerperal Insanity) ...               | —     | —  | —  | —  | —  | —  | —   | —   | —   | —   | 1   | —   | —   | —   | —   | —   | —   | 1     | 1            |              |
| Puerperal Dis. of Breast ...           | —     | —  | —  | —  | —  | —  | —   | —   | —   | 1   | —   | —   | —   | —   | —   | —   | —   | 1     | 1            |              |
| IX.—SKIN AND CELLULAR TISSUE.          |       |    |    |    |    |    |     |     |     |     |     |     |     |     |     |     |     |       |              |              |
| Gangrene ...                           | —     | —  | —  | —  | —  | —  | —   | —   | —   | —   | —   | —   | 5   | 3   | 5   | 1   | 5   | 9     | 14           |              |
| Carbuncle, Boil ...                    | —     | —  | —  | —  | —  | —  | —   | —   | 1   | 2   | 1   | 4   | 2   | 1   | 1   | 1   | 7   | 6     | 13           |              |
| Cellulitis, Acute Abscess, ...         | 1     | —  | —  | —  | —  | —  | —   | 1   | —   | —   | 2   | 4   | 2   | 3   | 1   | —   | 6   | 8     | 14           |              |
| Other Diseases of Skin and Annexa      | 8     | —  | —  | —  | —  | —  | —   | —   | —   | —   | —   | 1   | 2   | 5   | 2   | —   | 10  | 8     | 18           |              |
| X.—BONES AND ORGANS OF                 |       |    |    |    |    |    |     |     |     |     |     |     |     |     |     |     |     |       |              |              |
| LOCOMOTION.                            |       |    |    |    |    |    |     |     |     |     |     |     |     |     |     |     |     |       |              |              |
| Diseases of Bones ...                  | 2     | 1  | —  | 1  | 2  | 1  | 3   | 4   | 1   | —   | 1   | 3   | —   | 1   | —   | —   | 18  | 2     | 20           |              |
| Diseases of Joints ...                 | —     | —  | —  | —  | —  | —  | —   | —   | —   | 1   | 1   | —   | —   | 3   | 1   | —   | 2   | 4     | 6            |              |
| Amputations ...                        | —     | —  | —  | —  | —  | —  | —   | —   | —   | —   | —   | —   | —   | —   | —   | —   | —   | —     | —            |              |
| Other Dis. of Locomotor System         | —     | —  | —  | —  | —  | —  | —   | —   | —   | —   | —   | —   | 1   | —   | —   | —   | —   | 1     | 1            |              |
| XI.—CONGENITAL MALFORMATIONS.          |       |    |    |    |    |    |     |     |     |     |     |     |     |     |     |     |     |       |              |              |
| Congenital Malformations ...           | 87    | 4  | —  | —  | 2  | 3  | 3   | —   | 1   | 1   | 1   | —   | 1   | —   | —   | —   | 63  | 40    | 103          |              |

TABLE II.—Continued.

| CAUSE OF DEATH.  | AGES. |     |    |    |    |     |     |     |     |     |     |      |      |      |      |     | Males | Fe-<br>males | Per-<br>sons |
|--|-------|-----|----|----|----|-----|-----|-----|-----|-----|-----|------|------|------|------|-----|-------|--------------|--------------|
|  | 0-    | 1-  | 2- | 3- | 4- | 5-  | 10- | 15- | 20- | 25- | 35- | 45-  | 55-  | 65-  | 75-  | 85- |       |              |              |
| XII.—DISEASES OF EARLY INFANCY.                          |       |     |    |    |    |     |     |     |     |     |     |      |      |      |      |     |       |              |              |
| Cong. Debility, Sclerema, Icterus, ...                   | 64    | —   | —  | —  | —  | —   | —   | —   | —   | —   | —   | —    | —    | —    | —    | —   | 37    | 27           | 64           |
| Premature Birth, Injury at Birth, etc.                   | 352   | —   | —  | —  | —  | —   | —   | —   | —   | —   | —   | —    | —    | —    | —    | —   | 195   | 157          | 352          |
| Other Diseases, Early Infancy ...                        | 32    | —   | —  | —  | —  | —   | —   | —   | —   | —   | —   | —    | —    | —    | —    | —   | 15    | 17           | 32           |
| Lack of Care ... ..                                      | 9     | —   | —  | —  | —  | —   | —   | —   | —   | —   | —   | —    | —    | —    | —    | —   | 5     | 4            | 9            |
| XIII.—OLD AGE.   |       |     |    |    |    |     |     |     |     |     |     |      |      |      |      |     |       |              |              |
| Old Age ... ..   | —     | —   | —  | —  | —  | —   | —   | —   | —   | —   | —   | 1    | 3    | 48   | 134  | 74  | 111   | 149          | 260          |
| XIV.—EXTERNAL CAUSES.                                    |       |     |    |    |    |     |     |     |     |     |     |      |      |      |      |     |       |              |              |
| Suicide—   |       |     |    |    |    |     |     |     |     |     |     |      |      |      |      |     |       |              |              |
| Poison (Solid, Liquid or Corrosive Substances). ...      | —     | —   | —  | —  | —  | —   | —   | —   | 4   | 2   | 6   | 5    | 3    | 1    | —    | —   | 8     | 13           | 21           |
| „ Poisonous Gas ... ..                                   | —     | —   | —  | —  | —  | —   | —   | 1   | 2   | 2   | 8   | 20   | 11   | 4    | 2    | —   | 27    | 23           | 50           |
| „ Hanging, Strangulation ...                             | —     | —   | —  | —  | —  | —   | —   | —   | 2   | 1   | 2   | 6    | 4    | 1    | 2    | —   | 13    | 5            | 18           |
| „ Drowning ... ..  | —     | —   | —  | —  | —  | —   | —   | 1   | 3   | 4   | 6   | 11   | 5    | 6    | 2    | —   | 24    | 14           | 38           |
| „ Firearms ... ..  | —     | —   | —  | —  | —  | —   | —   | —   | —   | —   | —   | —    | —    | —    | —    | —   | —     | —            | —            |
| „ Cutting or Piercing ... ..                             | —     | —   | —  | —  | —  | —   | —   | —   | —   | 1   | 4   | 10   | 3    | 2    | 1    | —   | 18    | 3            | 21           |
| „ Jumping from High Places ...                           | —     | —   | —  | —  | —  | —   | —   | —   | —   | —   | —   | —    | 2    | —    | —    | —   | 1     | 1            | 2            |
| „ Crushing ... ..  | —     | —   | —  | —  | —  | —   | —   | —   | 1   | 1   | —   | 2    | —    | —    | —    | —   | 2     | 2            | 4            |
| „ Other Suicides ... ..                                  | —     | —   | —  | —  | —  | —   | —   | —   | —   | —   | —   | —    | —    | —    | —    | —   | —     | —            | —            |
| Poisoning by Food ... ..                                 | —     | —   | —  | —  | —  | —   | —   | —   | —   | —   | —   | —    | —    | 1    | —    | —   | —     | 1            | 1            |
| Poisoning by Venomous Animals ...                        | —     | —   | —  | —  | —  | —   | —   | —   | —   | —   | —   | —    | —    | —    | —    | —   | —     | —            | —            |
| Other Acute Poisonings ... ..                            | —     | —   | —  | —  | —  | —   | —   | —   | —   | —   | 1   | 2    | —    | —    | —    | —   | 2     | 1            | 3            |
| Conflagration ... ..                                     | —     | —   | —  | —  | —  | —   | —   | 1   | —   | —   | —   | —    | —    | —    | —    | —   | 1     | —            | 1            |
| Burns (Conflagration excepted) ...                       | 4     | 6   | 2  | 3  | 1  | 6   | —   | 2   | 2   | —   | —   | —    | 1    | 4    | 2    | —   | 12    | 21           | 33           |
| Acc. Mechanical Suffocation ... ..                       | 22    | —   | —  | —  | —  | —   | —   | —   | —   | —   | —   | —    | —    | —    | —    | —   | 8     | 14           | 22           |
| Acc. Absorption of Irrespirable or Poisonous Gas. ... .. | —     | —   | —  | —  | —  | —   | —   | —   | —   | —   | —   | —    | —    | —    | —    | —   | —     | —            | —            |
| Accidental Drowning ... ..                               | —     | —   | 1  | 1  | —  | 5   | 6   | 2   | 2   | 3   | —   | 1    | —    | —    | —    | —   | 17    | 4            | 21           |
| Accidental Injury—                                       |       |     |    |    |    |     |     |     |     |     |     |      |      |      |      |     |       |              |              |
| By Firearms ... ..                                       | —     | —   | —  | —  | —  | —   | —   | —   | —   | —   | —   | 1    | —    | —    | —    | —   | 1     | —            | 1            |
| „ Cutting or Piercing ... ..                             | —     | —   | —  | —  | —  | —   | —   | —   | —   | —   | —   | —    | —    | —    | —    | —   | —     | —            | —            |
| „ Fall ... ..  | 1     | 1   | 1  | —  | 1  | 1   | 3   | 4   | 2   | 4   | 3   | 10   | 8    | 29   | 30   | 12  | 62    | 48           | 110          |
| „ Mines and Quarries ... ..                              | —     | —   | —  | —  | —  | —   | —   | —   | —   | —   | —   | —    | —    | —    | —    | —   | —     | —            | —            |
| „ Machines ... ..  | —     | —   | —  | —  | —  | —   | —   | —   | 2   | 1   | 1   | 2    | —    | —    | —    | —   | 5     | 1            | 6            |
| „ Crushing by Motor Vehicles ...                         | —     | —   | 1  | 4  | 5  | 17  | 4   | 19  | 18  | 13  | 6   | 21   | 15   | 21   | 7    | 1   | 111   | 41           | 152          |
| „ Other Crushing ... ..                                  | —     | —   | —  | —  | —  | 2   | —   | —   | —   | 3   | 3   | 2    | 1    | 2    | —    | —   | 10    | 3            | 13           |
| „ Animals (Poisoning excep'd) ...                        | —     | —   | —  | —  | —  | —   | —   | —   | —   | —   | —   | —    | —    | —    | —    | —   | —     | —            | —            |
| „ Wounds of War ... ..                                   | —     | —   | —  | —  | —  | —   | —   | —   | —   | —   | —   | 1    | —    | —    | —    | —   | 1     | —            | 1            |
| „ Execution of Civilians by Armies ...                   | —     | —   | —  | —  | —  | —   | —   | —   | —   | —   | —   | —    | —    | —    | —    | —   | —     | —            | —            |
| „ Hunger or Thirst... ..                                 | —     | —   | —  | —  | —  | —   | —   | —   | —   | —   | —   | —    | —    | —    | —    | —   | —     | —            | —            |
| Excessive Cold ... ..                                    | —     | —   | —  | —  | —  | —   | —   | —   | —   | —   | —   | —    | —    | —    | —    | —   | —     | —            | —            |
| Effects of Heat ... ..                                   | —     | —   | —  | —  | —  | —   | —   | —   | —   | —   | —   | —    | —    | —    | —    | —   | —     | —            | —            |
| Lightning ... ..   | —     | —   | —  | —  | —  | —   | —   | —   | —   | —   | —   | —    | —    | —    | 1    | —   | 1     | —            | 1            |
| Electricity ... ..                                       | —     | —   | —  | —  | —  | —   | —   | —   | —   | —   | —   | —    | —    | —    | —    | —   | 1     | —            | —            |
| Homicide by Firearms ... ..                              | —     | —   | —  | —  | —  | —   | —   | —   | —   | —   | 1   | —    | 1    | —    | —    | —   | 1     | 1            | 2            |
| Homicide by Cutting or Piercing ...                      | —     | —   | 1  | —  | —  | 1   | —   | —   | —   | 1   | —   | —    | —    | —    | —    | —   | 2     | 1            | 3            |
| Homicide, Other Means ... ..                             | —     | —   | —  | —  | —  | —   | —   | 1   | —   | 1   | —   | —    | 1    | —    | —    | —   | —     | 3            | 3            |
| Infanticide ... ..                                       | 3     | —   | —  | —  | —  | —   | —   | —   | —   | —   | —   | —    | —    | —    | —    | —   | 3     | —            | 3            |
| Fractures (not specified) ... ..                         | 1     | —   | —  | —  | —  | —   | —   | —   | —   | —   | —   | —    | —    | 1    | —    | 2   | 3     | 1            | 4            |
| Other forms of Violence, Execution ...                   | 1     | —   | —  | —  | —  | —   | 2   | 2   | 1   | 2   | —   | —    | —    | 1    | —    | —   | 7     | 2            | 9            |
| Violent Deaths, cause unknown ...                        | —     | —   | —  | —  | —  | —   | —   | —   | —   | —   | —   | —    | —    | —    | —    | —   | —     | —            | —            |
| XV.—ILL-DEFINED DISEASES.                                |       |     |    |    |    |     |     |     |     |     |     |      |      |      |      |     |       |              |              |
| Ill-defined, Sudden death ... ..                         | —     | —   | —  | —  | —  | —   | —   | —   | —   | —   | 1   | —    | —    | —    | —    | —   | 1     | —            | 1            |
| Cause, ill-defined or unstated ... ..                    | —     | —   | —  | —  | —  | —   | —   | —   | —   | —   | —   | —    | 1    | 1    | —    | —   | 2     | —            | 2            |
| TOTALS ... ..  | 1117  | 238 | 85 | 60 | 47 | 180 | 104 | 207 | 266 | 498 | 775 | 1353 | 1700 | 2103 | 1585 | 349 | 5575  | 5092         | 10667        |

TABLE III. Births and Deaths Registered in, or belonging to, each Ward during the Year ending December 31st, 1928.

| CAUSES OF DEATH.  | Accoek's Green. | All Saints' | Aston. | Balsall Heath | Buddeston and Nechells | Edgbaston | Erdington (North) | Erdington (South) | Handsworth | Harborne | King's Norton | Ladlywood | Lozells | Market Hall | Moseley and King's Heath | Northfield | Perry Barr | Rotton Park | St. Bartholomew's | St. Martin's | St. Mary's | St. Paul's | Satley | Sandwell | Selly Oak | Small Heath | Soho | Sparkbrook | Sparkhill | Washwood Heath | Yardley | Not Located | City  |
|---|-----------------|-------------|--------|---------------|------------------------|-----------|-------------------|-------------------|------------|----------|---------------|-----------|---------|-------------|--------------------------|------------|------------|-------------|-------------------|--------------|------------|------------|--------|----------|-----------|-------------|------|------------|-----------|----------------|---------|-------------|-------|
| Enteric fever ...   | ...             | —           | —      | —             | —                      | 1         | —                 | —                 | —          | —        | —             | —         | —       | —           | —                        | —          | —          | —           | —                 | —            | —          | 1          | —      | —        | —         | —           | —    | —          | —         | —              | —       | 1           | 3     |
| Small Pox ...   | ...             | —           | 1      | 1             | —                      | —         | —                 | —                 | —          | —        | —             | 3         | —       | 2           | —                        | —          | —          | —           | —                 | —            | —          | —          | —      | —        | —         | —           | —    | —          | —         | —              | —       | —           | 1     |
| Measles ...   | ...             | 1           | —      | —             | 4                      | —         | —                 | —                 | —          | —        | —             | —         | —       | —           | —                        | —          | —          | —           | —                 | —            | —          | —          | —      | —        | —         | —           | —    | —          | —         | —              | —       | —           | 1     |
| Scarlet Fever ...   | ...             | —           | —      | —             | 12                     | 2         | 10                | 3                 | 2          | —        | 1             | 11        | 2       | 3           | —                        | 1          | —          | 5           | 13                | 10           | 17         | 15         | 3      | 1        | —         | —           | —    | —          | —         | —              | —       | —           | 1     |
| Whooping Cough ...  | ...             | 2           | 13     | 4             | 1                      | 2         | 1                 | 3                 | 1          | 1        | 4             | 3         | 2       | —           | 2                        | 2          | —          | 3           | 8                 | 1            | 4          | 5          | 2      | 1        | —         | —           | —    | —          | —         | —              | —       | —           | 163   |
| Diphtheria, Croup ...                                     | ...             | 3           | 9      | 1             | 3                      | 1         | 1                 | 2                 | 3          | 1        | 4             | 3         | 2       | —           | 4                        | 1          | —          | 4           | 12                | 4            | 11         | 2          | 5      | 1        | 4         | 3           | 4    | 5          | 5         | 6              | 4       | 70          |       |
| Influenza ...   | ...             | 10          | 5      | 2             | 10                     | 4         | 5                 | 7                 | 3          | 1        | 1             | 2         | 2       | 2           | 4                        | 1          | —          | 4           | 12                | 4            | 11         | 2          | 5      | 1        | 4         | 3           | 4    | 5          | 5         | 6              | 2       | 130         |       |
| Pulmonary Tuberculosis...                                 | ...             | 28          | 45     | 50            | 31                     | 11        | 18                | 11                | 22         | 4        | 12            | 39        | 33      | 13          | 17                       | 13         | —          | 31          | 47                | 70           | 51         | 27         | 11     | 19       | 28        | 23          | 29   | 15         | 28        | 2              | 2       | 840         |       |
| Other Tuberculous Dis.                                    | ...             | 1           | 3      | 4             | 7                      | 2         | 7                 | 4                 | 5          | 1        | —             | 2         | 4       | 1           | 2                        | 1          | 1          | 6           | 11                | 8            | 6          | 7          | 2      | 3        | 5         | 8           | 4    | 5          | 6         | 2              | 2       | 125         |       |
| Cancer ...  | ...             | 42          | 51     | 61            | 69                     | 38        | 33                | 25                | 41         | 31       | 43            | 43        | 52      | 27          | 39                       | 12         | 1          | 63          | 54                | 73           | 51         | 35         | 40     | 32       | 34        | 44          | 41   | 67         | 41        | 52             | 28      | 11          | 1321  |
| Rheumatic Fever ...                                       | ...             | —           | 2      | 1             | 2                      | 1         | 6                 | 3                 | 1          | 1        | 2             | 5         | 3       | —           | —                        | —          | —          | 3           | 6                 | 2            | 2          | 1          | 7      | 1        | 2         | 1           | 2    | 1          | 1         | 2              | 3       | —           | 61    |
| Diabetes ...  | ...             | 6           | 5      | 2             | 1                      | 3         | 2                 | 1                 | 5          | —        | 2             | 5         | 5       | 1           | 5                        | —          | —          | 3           | 6                 | 2            | 4          | 2          | 1      | 2        | 3         | 4           | 4    | 2          | 5         | 4              | 2       | —           | 88    |
| Encephalitis Lethargica ...                               | ...             | 1           | 1      | 2             | 2                      | 2         | 1                 | 1                 | 1          | —        | —             | 1         | —       | 1           | 1                        | —          | —          | —           | 3                 | 1            | —          | 3          | 2      | 2        | 1         | 5           | 1    | 3          | 1         | 1              | —       | —           | 32    |
| Cerebro-Spinal Fever ...                                  | ...             | —           | —      | —             | —                      | —         | —                 | —                 | —          | —        | —             | —         | —       | —           | —                        | —          | —          | —           | 1                 | 2            | —          | —          | —      | —        | —         | —           | —    | —          | —         | —              | —       | —           | 9     |
| Acute Poliomyelitis ...                                   | ...             | —           | —      | —             | —                      | —         | —                 | —                 | —          | —        | —             | —         | —       | —           | —                        | —          | —          | —           | —                 | —            | —          | —          | —      | —        | —         | —           | —    | —          | —         | —              | —       | —           | 1     |
| Cereb'l Haemorr., Etc. ...                                | ...             | 24          | 20     | 22            | 21                     | 25        | 7                 | 9                 | 16         | 10       | 6             | 20        | 36      | 14          | 16                       | 7          | —          | 23          | 33                | 30           | 25         | 17         | 15     | 4        | 16        | 21          | 14   | 25         | 14        | 29             | 8       | 5           | 558   |
| Other Dis. of Nerv. Sys. ...                              | ...             | 11          | 9      | 14            | 18                     | 13        | 12                | 8                 | 10         | 14       | 3             | 11        | 16      | 6           | 13                       | 9          | —          | 11          | 14                | 14           | 18         | 10         | 13     | 5        | 6         | 14          | 10   | 12         | 6         | 11             | 7       | 3           | 326   |
| Diseases of Heart...                                      | ...             | 52          | 72     | 80            | 75                     | 104       | 48                | 45                | 38         | 28       | 27            | 47        | 73      | 28          | 82                       | 15         | —          | 69          | 74                | 88           | 84         | 70         | 60     | 35       | 53        | 59          | 34   | 70         | 53        | 65             | 37      | 17          | 520   |
| Arterio-Sclerosis ...                                     | ...             | 8           | 32     | 16            | 24                     | 21        | 18                | 15                | 7          | 21       | 17            | 17        | 25      | 11          | 19                       | 13         | 1          | 21          | 16                | 16           | 22         | 24         | 10     | 13       | 8         | 10          | 34   | 15         | 25        | 12             | 9       | 9           | 520   |
| Other Circ. Dis.  | ...             | —           | 6      | 3             | 9                      | 3         | 5                 | 4                 | 2          | 4        | 1             | 3         | 1       | 5           | 3                        | 7          | 1          | 4           | 3                 | 4            | 2          | 4          | 5      | 2        | 1         | 3           | 2    | 2          | 2         | 5              | 5       | —           | 101   |
| Bronchitis ...  | ...             | 12          | 13     | 22            | 25                     | 24        | 6                 | 7                 | 11         | 7        | 11            | 20        | 22      | 13          | 13                       | 7          | —          | 19          | 32                | 44           | 30         | 25         | 14     | 8        | 9         | 14          | 11   | 25         | 14        | 19             | 5       | 10          | 512   |
| Pneumonia ...   | ...             | 19          | 43     | 51            | 29                     | 61        | 31                | 18                | 16         | 3        | 12            | 40        | 27      | 25          | 19                       | 11         | 1          | 35          | 41                | 52           | 70         | 56         | 37     | 13       | 20        | 23          | 18   | 31         | 17        | 28             | 9       | 7           | 893   |
| Other Respiratory Dis.                                    | ...             | 2           | 7      | 4             | 8                      | 3         | 3                 | 1                 | 5          | —        | 4             | 2         | 8       | —           | 8                        | 1          | 1          | 8           | 5                 | 7            | 5          | 6          | 6      | 4        | 1         | 3           | 3    | 3          | 3         | 4              | 2       | —           | 120   |
| Ulcer of Stomach and Duodenum ...                         | ...             | —           | —      | —             | —                      | —         | —                 | —                 | —          | —        | —             | —         | —       | —           | —                        | —          | —          | —           | —                 | —            | —          | —          | —      | —        | —         | —           | —    | —          | —         | —              | —       | —           | —     |
| Diarrhoea, Enteritis, etc—                                | ...             | 2           | 3      | 6             | 9                      | 4         | 2                 | 3                 | 1          | 1        | 6             | 3         | 4       | 2           | 6                        | 1          | —          | 2           | 2                 | 6            | 2          | 4          | 3      | 1        | 4         | 3           | —    | 8          | 4         | 4              | 1       | 2           | 101   |
| Under two years...  | ...             | 2           | 2      | 9             | 3                      | 18        | 3                 | —                 | 2          | 2        | 1             | 9         | 2       | 5           | 2                        | 2          | —          | 6           | 18                | 18           | 14         | 10         | 2      | 1        | 4         | 8           | 1    | 3          | 3         | 4              | 3       | 3           | 161   |
| Two years and over  | ...             | 1           | —      | 1             | 2                      | 3         | 4                 | —                 | —          | 1        | —             | 1         | 3       | 1           | 1                        | —          | 1          | 1           | 3                 | 1            | 4          | 2          | 3      | 2        | —         | 3           | 1    | 3          | 1         | —              | 1       | —           | 44    |
| Appendicitis, Typhlitis                                   | ...             | 2           | 2      | 2             | 1                      | 8         | 2                 | —                 | 2          | 1        | 5             | 1         | —       | —           | 4                        | 1          | —          | 2           | 1                 | 3            | 5          | 2          | 6      | 2        | —         | 1           | 2    | 6          | 3         | 4              | 1       | —           | 80    |
| Cirrhosis of Liver  | ...             | 3           | 3      | —             | 4                      | 3         | 5                 | 1                 | 4          | —        | —             | 1         | 1       | 3           | —                        | —          | —          | 3           | 1                 | 5            | 1          | 1          | 1      | 1        | 1         | 1           | 3    | 3          | —         | 5              | —       | 52          |       |
| Other Digestive Dis.                                      | ...             | 4           | 10     | 8             | 7                      | 10        | 8                 | 6                 | 8          | 5        | 5             | 9         | 7       | 5           | 10                       | 2          | —          | 7           | 10                | 14           | 11         | 6          | 3      | 6        | 12        | 8           | 4    | 7          | 5         | 5              | 7       | 2           | 221   |
| Nephritis & Brights' Dis...                               | ...             | 16          | 10     | 12            | 15                     | 13        | 6                 | 7                 | 11         | 5        | 15            | 7         | 10      | 9           | 12                       | 3          | —          | 16          | 10                | 17           | 4          | 15         | 11     | 5        | 6         | 12          | 11   | 18         | 11        | 10             | 11      | 5           | 324   |
| Puerperal Fever ...                                       | ...             | 2           | 3      | 3             | —                      | 2         | —                 | —                 | 1          | 1        | —             | 2         | —       | —           | 2                        | —          | —          | —           | —                 | —            | 2          | 5          | —      | —        | 1         | —           | —    | —          | —         | 1              | 2       | —           | 32    |
| Other Acc. and Dis. of Pregnancy & Parturit'n             | ...             | 2           | —      | 2             | 2                      | —         | 2                 | 2                 | 2          | —        | —             | —         | —       | —           | 1                        | 1          | —          | 1           | 1                 | 1            | 3          | 1          | 1      | 1        | 1         | 1           | 1    | 3          | 2         | —              | 1       | —           | 34    |
| Congenital Debility and Malformation, Premature Birth ... | ...             | 25          | 17     | 19            | 19                     | 38        | 9                 | 8                 | 6          | 9        | 12            | 12        | 20      | 12          | 11                       | 2          | —          | 24          | 21                | 29           | 31         | 17         | 30     | 7        | 18        | 12          | 14   | 11         | 15        | 31             | 17      | 5           | 519   |
| Suicides ...  | ...             | 7           | 11     | 5             | 7                      | 11        | —                 | 5                 | 5          | 3        | 4             | 2         | 3       | 4           | 6                        | 2          | —          | 6           | 7                 | 8            | 3          | 2          | 9      | 1        | 7         | 5           | 3    | 5          | 5         | 6              | 6       | 2           | 154   |
| Other deaths from Violence                                | ...             | 20          | 15     | 15            | 13                     | 18        | 14                | 7                 | 12         | 7        | 12            | 19        | 15      | 14          | 6                        | 1          | —          | 11          | 13                | 22           | 18         | 18         | 23     | 4        | 4         | 14          | 11   | 14         | 7         | 14             | 14      | 3           | 389   |
| Other Defined Diseases                                    | ...             | 33          | 26     | 38            | 41                     | 34        | 35                | 25                | 25         | 8        | 30            | 29        | 24      | 18          | 37                       | 6          | 3          | 43          | 33                | 41           | 48         | 29         | 32     | 21       | 35        | 28          | 31   | 26         | 36        | 32             | 17      | 19          | 901   |
| Il-Def. Causes ...  | ...             | —           | —      | —             | —                      | —         | 1                 | —                 | —          | —        | —             | —         | —       | —           | —                        | —          | —          | —           | —                 | —            | —          | —          | —      | 1        | —         | —           | —    | —          | —         | —              | —       | —           | 3     |
| TOTAL DEATHS ...  | ...             | 341         | 439    | 461           | 453                    | 535       | 339               | 293               | 283        | 150      | 242           | 368       | 404     | 224         | 345                      | 115        | 8          | 432         | 501               | 600          | 555        | 447        | 380    | 189      | 277       | 344         | 287  | 411        | 313       | 392            | 219     | 107         | 10667 |
| DEATHS UNDER 1 YEAR ...                                   | ...             | 38          | 35     | 45            | 38                     | 71        | 18                | 41                | 10         | 14       | 18            | 37        | 33      | 31          | 19                       | 8          | —          | 52          | 74                | 79           | 88         | 52         | 51     | 16       | 33        | 31          | 26   | 30         | 33        | 44             | 24      | 14          | 1117  |
| BIRTHS ...  | ...             | 768         | 760    | 783           | 612                    | 975       | 395               | 661               | 295        | 215      | 331           | 540       | 522     | 309         | 460                      | 173        | 21         | 691         | 835               | 943          | 869        | 731        | 719    | 235      | 400       | 529         | 353  | 536        | 704       | 709            | 560     | 236         | 17222 |

TABLE IV.  
Deaths under 1 year Registered in, or belonging to, each Ward during the Year ending December 31st, 1928.

| CAUSES OF DEATH.                   | Acocck's Green | All Saints' | Aston | Balsall Heath | Duddeston and Nechells | Edgbaston | Erdington (North) | Erdington (South) | Handsworth | Harborne | King's Norton | Ladywood | Lozells | Market Hall | Moseley and King's Heath | Northfield | Rotton Park | St. Bartholomew's | St. Martin's | St. Mary's | St. Paul's | Saltley | Sandwell | Selly Oak | Small Heath | Soho | Sparkbrook | Sparkhill | Washwood Heath | Yardley | Not Located | City |     |
|------------------------------------|----------------|-------------|-------|---------------|------------------------|-----------|-------------------|-------------------|------------|----------|---------------|----------|---------|-------------|--------------------------|------------|-------------|-------------------|--------------|------------|------------|---------|----------|-----------|-------------|------|------------|-----------|----------------|---------|-------------|------|-----|
| Measles ...                        | ...            | —           | —     | 1             | —                      | —         | —                 | —                 | —          | —        | —             | —        | —       | —           | —                        | —          | 1           | 1                 | 2            | 4          | 2          | —       | —        | —         | —           | —    | 1          | —         | —              | —       | 1           | 13   |     |
| Scarlet Fever ...                  | ...            | —           | —     | —             | —                      | —         | —                 | —                 | —          | —        | —             | —        | —       | —           | —                        | —          | 3           | 6                 | 4            | 8          | 6          | —       | —        | —         | —           | —    | —          | 2         | 1              | 3       | —           | 75   |     |
| Whooping Cough ...                 | ...            | 1           | 4     | 3             | 5                      | 1         | 5                 | 2                 | —          | —        | 1             | 4        | 2       | 2           | —                        | —          | —           | 1                 | —            | —          | —          | —       | —        | —         | —           | —    | —          | —         | —              | —       | —           | 2    |     |
| Diphtheria ...                     | ...            | —           | —     | —             | —                      | —         | —                 | —                 | —          | —        | —             | —        | —       | —           | —                        | —          | —           | 2                 | 1            | —          | —          | —       | —        | —         | —           | —    | —          | —         | —              | —       | —           | 4    |     |
| Influenza ...                      | ...            | 1           | —     | —             | —                      | —         | 1                 | —                 | —          | —        | —             | —        | 1       | —           | —                        | 1          | —           | 2                 | 1            | —          | —          | —       | —        | —         | —           | —    | —          | —         | —              | —       | —           | 10   |     |
| Tuberculous Meningitis ...         | ...            | —           | —     | —             | —                      | —         | —                 | —                 | —          | —        | —             | —        | —       | —           | —                        | —          | —           | —                 | —            | —          | —          | —       | —        | —         | —           | —    | —          | —         | —              | —       | —           | —    | 9   |
| Abdominal Tuberculosis ...         | ...            | —           | —     | —             | —                      | —         | 1                 | —                 | —          | —        | —             | —        | 1       | —           | —                        | —          | —           | 2                 | 1            | 1          | 1          | —       | —        | —         | —           | —    | —          | 1         | 1              | —       | —           | 3    |     |
| Other Tuberculous Dis. ...         | ...            | —           | —     | —             | —                      | —         | 1                 | —                 | —          | —        | —             | —        | —       | —           | —                        | —          | —           | 2                 | —            | 2          | —          | —       | —        | —         | —           | —    | —          | —         | 1              | —       | —           | 7    |     |
| Rickets ...                        | ...            | —           | —     | —             | —                      | —         | —                 | —                 | —          | —        | —             | —        | —       | —           | —                        | —          | —           | —                 | —            | —          | —          | —       | —        | —         | —           | —    | —          | —         | —              | —       | —           | —    | —   |
| Syphilis ...                       | ...            | 1           | 1     | —             | —                      | —         | —                 | —                 | —          | —        | —             | —        | —       | —           | —                        | —          | —           | —                 | —            | —          | —          | —       | —        | —         | —           | —    | —          | —         | —              | —       | —           | —    | —   |
| Polio-encephalitis ...             | ...            | —           | —     | —             | —                      | —         | —                 | —                 | —          | —        | —             | —        | —       | —           | —                        | —          | —           | —                 | —            | —          | —          | —       | —        | —         | —           | —    | —          | —         | —              | —       | —           | —    | —   |
| Encephalitis Lethargica ...        | ...            | —           | —     | —             | —                      | —         | —                 | —                 | —          | —        | —             | 1        | —       | 1           | —                        | —          | —           | —                 | —            | —          | —          | —       | —        | —         | —           | —    | —          | —         | —              | —       | —           | —    | 3   |
| Cerebro-Spinal Fever ...           | ...            | —           | —     | —             | —                      | —         | —                 | —                 | —          | —        | —             | —        | —       | —           | —                        | —          | —           | —                 | —            | —          | —          | —       | —        | —         | —           | —    | —          | —         | —              | —       | —           | —    | —   |
| Meningitis(not tuberculous) ...    | ...            | —           | —     | —             | —                      | —         | —                 | —                 | —          | —        | —             | —        | —       | —           | —                        | —          | —           | 2                 | 3            | 1          | 1          | —       | —        | —         | —           | —    | —          | 1         | 2              | —       | —           | —    | 11  |
| Convulsions ...                    | ...            | 2           | —     | —             | 2                      | 1         | 1                 | 2                 | —          | —        | —             | —        | 3       | —           | 1                        | —          | —           | 2                 | 4            | 1          | 1          | —       | —        | —         | —           | —    | —          | 2         | 2              | —       | —           | —    | 23  |
| Bronchitis ...                     | ...            | 4           | 7     | 6             | 6                      | 4         | 6                 | —                 | 1          | 1        | —             | 6        | —       | 7           | 2                        | —          | 3           | 11                | 8            | 19         | 10         | 10      | —        | —         | —           | —    | 3          | 3         | —              | —       | —           | —    | 27  |
| Pneumonia (all forms) ...          | ...            | —           | —     | —             | —                      | —         | —                 | —                 | —          | —        | —             | —        | —       | —           | —                        | —          | —           | —                 | —            | —          | —          | —       | —        | —         | —           | —    | —          | —         | —              | —       | —           | —    | 150 |
| Gastritis ...                      | ...            | 2           | 2     | 8             | 16                     | 2         | 3                 | —                 | —          | 2        | —             | 7        | 1       | 5           | 2                        | 2          | 6           | 14                | 14           | 13         | 10         | 2       | 1        | —         | —           | —    | —          | —         | —              | —       | —           | —    | 4   |
| Diarrhoea, Enteritis, etc. ...     | ...            | 2           | 2     | 4             | 4                      | 3         | 2                 | —                 | 1          | 2        | 2             | —        | 3       | 1           | 1                        | —          | 5           | 3                 | 3            | 6          | 3          | 10      | 1        | —         | —           | —    | 4          | 4         | 3              | 5       | 2           | —    | 139 |
| Congenital Malformations ...       | ...            | 19          | 11    | 12            | 29                     | 4         | 12                | 7                 | 4          | 7        | 5             | 9        | 11      | 8           | 5                        | 1          | 16          | 13                | 21           | 15         | 13         | 20      | 6        | —         | —           | —    | 5          | 11        | 14             | 12      | —           | 327  |     |
| Premature Birth ...                | ...            | 3           | 3     | 2             | 5                      | 1         | 3                 | —                 | —          | —        | 1             | 2        | 3       | 1           | 3                        | —          | 2           | 3                 | 3            | 8          | —          | —       | —        | —         | —           | —    | 3          | 2         | 1              | 8       | —           | 1    | 64  |
| Atrophy, Debility and Marasmus ... | ...            | —           | 1     | 3             | —                      | —         | 2                 | —                 | —          | 1        | 1             | 1        | —       | 1           | —                        | —          | 3           | —                 | 4            | 3          | 1          | 1       | —        | —         | —           | —    | 2          | 1         | 3              | —       | —           | 28   |     |
| Atelectasis ...                    | ...            | —           | —     | —             | —                      | —         | 1                 | —                 | 1          | —        | 2             | —        | 1       | 2           | —                        | —          | —           | 2                 | 1            | 2          | —          | —       | —        | —         | —           | —    | —          | —         | —              | —       | —           | —    | 25  |
| Injury at Birth ...                | ...            | —           | —     | 1             | —                      | —         | —                 | —                 | —          | —        | —             | —        | —       | —           | —                        | —          | —           | —                 | —            | —          | —          | —       | —        | —         | —           | —    | —          | —         | —              | —       | —           | —    | 9   |
| Neglect (under 3 months) ...       | ...            | —           | —     | —             | —                      | —         | —                 | —                 | —          | —        | —             | —        | —       | —           | —                        | —          | —           | —                 | —            | —          | —          | —       | —        | —         | —           | —    | —          | —         | —              | —       | —           | —    | 20  |
| Suffocation (overlying) ...        | ...            | —           | —     | 2             | 1                      | —         | 1                 | —                 | 1          | 1        | —             | 2        | 1       | 1           | —                        | —          | 2           | —                 | 2            | 1          | —          | —       | —        | —         | —           | —    | —          | 1         | —              | —       | —           | —    | 9   |
| Other Causes ...                   | ...            | 2           | 4     | 1             | 3                      | 1         | 3                 | 2                 | 1          | —        | 3             | 3        | 2       | 1           | —                        | —          | 4           | 5                 | 7            | 3          | 4          | 6       | 4        | —         | —           | —    | —          | —         | —              | —       | —           | —    | 77  |
| All Causes ...                     | ...            | 38          | 35    | 45            | 38                     | 71        | 41                | 14                | 10         | 14       | 18            | 37       | 33      | 31          | 19                       | 8          | 52          | 74                | 79           | 88         | 52         | 51      | 16       | 33        | 31          | 26   | 30         | 33        | 44             | 24      | 14          | 1117 |     |

(No deaths under 1 year occurred in Perry Barr Ward.)

TABLE V.

*Cases of Infectious Diseases notified during each week of the year 1928.*

| Number. | WEEK      |        | Enteric Fever. | Continued Fever. | Malaria. | Trench Fever. | Smallpox | Scarlet Fever. | Diphtheria. | Dysentery. | Erysipelas. | Pulmonary Tuberculosis. | Other Tuberculosis. | Encephalitis Lethargica. | Cerebro-Spinal Fever. | Poliomyelitis. | Polio-Encephalitis. | Pneumonia. | Puerperal Fever. | Puerperal Pyrexia | Ophthalmia Neonatorum. | TOTAL. |
|---------|-----------|--------|----------------|------------------|----------|---------------|----------|----------------|-------------|------------|-------------|-------------------------|---------------------|--------------------------|-----------------------|----------------|---------------------|------------|------------------|-------------------|------------------------|--------|
|         | Beginning | Ending |                |                  |          |               |          |                |             |            |             |                         |                     |                          |                       |                |                     |            |                  |                   |                        |        |
| 1       | 1928.     |        |                |                  |          |               |          |                |             |            |             |                         |                     |                          |                       |                |                     |            |                  |                   |                        |        |
| 2       | Jan.      | 7      | —              | —                | —        | —             | —        | 23             | 30          | 1          | 10          | 23                      | 3                   | 2                        | —                     | —              | —                   | 89         | 1                | 3                 | 8                      | 193    |
| 3       | "         | 14     | 1              | —                | —        | —             | —        | 34             | 36          | —          | 8           | 29                      | 5                   | —                        | —                     | —              | —                   | 66         | 3                | 2                 | 13                     | 197    |
| 4       | "         | 21     | —              | —                | —        | —             | 14       | 29             | 28          | 1          | 14          | 39                      | 4                   | —                        | —                     | —              | —                   | 60         | 5                | 2                 | 3                      | 199    |
| 5       | "         | 28     | 1              | —                | 1        | —             | 17       | 26             | 50          | —          | 10          | 24                      | 10                  | 1                        | —                     | —              | —                   | 36         | 1                | 3                 | 13                     | 193    |
| 6       | Feb.      | 4      | 1              | —                | 1        | —             | 12       | 28             | 41          | —          | 6           | 33                      | 4                   | 1                        | —                     | —              | —                   | 37         | 2                | 3                 | 7                      | 176    |
| 7       | "         | 11     | 1              | —                | —        | —             | 2        | 34             | 40          | —          | 9           | 23                      | 4                   | 2                        | —                     | —              | —                   | 38         | 1                | 3                 | 9                      | 166    |
| 8       | "         | 18     | 1              | —                | —        | —             | —        | 33             | 25          | —          | 9           | 24                      | 2                   | 1                        | 2                     | 1              | —                   | 45         | —                | 1                 | 13                     | 157    |
| 9       | "         | 25     | —              | —                | —        | —             | 1        | 24             | 25          | 1          | 9           | 23                      | 2                   | 2                        | —                     | 1              | —                   | 55         | 4                | 2                 | 7                      | 156    |
| 10      | Mar.      | 3      | —              | —                | —        | —             | 2        | 24             | 31          | —          | 11          | 24                      | 6                   | —                        | 1                     | —              | —                   | 41         | 2                | 4                 | 7                      | 153    |
| 11      | "         | 10     | —              | —                | 1        | —             | —        | 36             | 21          | 1          | 8           | 40                      | 2                   | 2                        | —                     | —              | —                   | 50         | —                | 2                 | 11                     | 174    |
| 12      | "         | 17     | —              | —                | —        | —             | 1        | 31             | 31          | —          | 13          | 34                      | 5                   | 1                        | —                     | —              | —                   | 62         | 1                | 1                 | 13                     | 193    |
| 13      | "         | 24     | 1              | —                | —        | —             | —        | 25             | 40          | —          | 10          | 24                      | 2                   | 1                        | —                     | —              | —                   | 59         | 1                | 3                 | 12                     | 178    |
| 14      | "         | 31     | 1              | —                | —        | —             | —        | 25             | 32          | —          | 7           | 22                      | 1                   | 2                        | 1                     | —              | —                   | 58         | 2                | 2                 | 10                     | 163    |
| 15      | April     | 7      | 1              | —                | —        | —             | —        | 32             | 15          | —          | 12          | 27                      | 7                   | —                        | —                     | 1              | —                   | 63         | —                | 2                 | 3                      | 163    |
| 16      | "         | 14     | 1              | —                | 1        | —             | 1        | 22             | 36          | —          | 4           | 35                      | 2                   | 1                        | —                     | —              | —                   | 38         | 1                | 1                 | 10                     | 153    |
| 17      | "         | 21     | —              | —                | —        | —             | —        | 28             | 26          | 1          | 8           | 29                      | 4                   | 1                        | —                     | —              | —                   | 52         | 1                | 4                 | 4                      | 158    |
| 18      | "         | 28     | —              | —                | —        | —             | —        | 23             | 25          | 7          | 4           | 26                      | 8                   | —                        | —                     | —              | —                   | 26         | 3                | 2                 | 8                      | 132    |
| 19      | May       | 5      | —              | —                | 1        | —             | —        | 31             | 19          | —          | 13          | 23                      | 9                   | 1                        | 1                     | —              | —                   | 49         | 1                | 2                 | 18                     | 168    |
| 20      | "         | 12     | 1              | —                | —        | —             | —        | 16             | 40          | —          | 5           | 33                      | 11                  | —                        | —                     | —              | —                   | 57         | 1                | 3                 | 15                     | 182    |
| 21      | "         | 19     | —              | —                | —        | —             | —        | 24             | 22          | —          | 7           | 38                      | 6                   | 1                        | —                     | —              | —                   | 57         | 1                | 4                 | 12                     | 172    |
| 22      | "         | 26     | —              | —                | 1        | —             | —        | 24             | 20          | —          | 6           | 30                      | 10                  | 1                        | —                     | —              | —                   | 65         | 2                | 1                 | 11                     | 171    |
| 23      | June      | 2      | —              | —                | —        | —             | —        | 24             | 24          | 1          | 5           | 28                      | 2                   | 1                        | —                     | —              | —                   | 45         | 5                | 2                 | 11                     | 148    |
| 24      | "         | 9      | —              | —                | —        | —             | —        | 31             | 24          | —          | 3           | 35                      | 7                   | 1                        | —                     | —              | —                   | 61         | 1                | —                 | 9                      | 172    |
| 25      | "         | 16     | —              | —                | —        | —             | 2        | 32             | 18          | —          | 14          | 29                      | 5                   | —                        | 1                     | —              | —                   | 45         | —                | 2                 | 14                     | 162    |
| 26      | "         | 23     | —              | —                | —        | —             | —        | 25             | 28          | —          | 7           | 29                      | 7                   | 1                        | 1                     | —              | —                   | 38         | 1                | 1                 | 11                     | 149    |
| 27      | "         | 30     | 1              | —                | —        | —             | —        | 32             | 24          | —          | 6           | 31                      | 9                   | 1                        | —                     | —              | —                   | 30         | 1                | 1                 | 11                     | 147    |
| 28      | July      | 7      | —              | —                | —        | —             | —        | 26             | 22          | —          | 8           | 31                      | 3                   | —                        | —                     | —              | 1                   | 40         | 1                | 1                 | 14                     | 147    |
| 29      | "         | 14     | —              | —                | 1        | —             | 1        | 17             | 18          | —          | 5           | 23                      | —                   | —                        | —                     | —              | —                   | 35         | —                | 2                 | 11                     | 113    |
| 30      | "         | 21     | —              | —                | —        | —             | —        | 29             | 31          | —          | 8           | 25                      | 6                   | —                        | —                     | —              | —                   | 41         | 2                | 2                 | 6                      | 150    |
| 31      | "         | 28     | —              | —                | —        | —             | —        | 17             | 28          | —          | 3           | 16                      | 5                   | —                        | —                     | —              | —                   | 33         | 2                | 3                 | 6                      | 113    |
| 32      | Aug.      | 4      | 1              | —                | —        | —             | —        | 16             | 22          | 1          | 3           | 24                      | 3                   | —                        | —                     | —              | —                   | 19         | 1                | 2                 | 16                     | 108    |
| 33      | "         | 11     | 1              | —                | —        | —             | —        | 14             | 18          | —          | 4           | 18                      | 1                   | —                        | 1                     | —              | —                   | 15         | 2                | 3                 | 9                      | 86     |
| 34      | "         | 18     | —              | —                | —        | —             | —        | 20             | 31          | —          | 10          | 26                      | 5                   | —                        | —                     | —              | —                   | 33         | 3                | 2                 | 15                     | 145    |
| 35      | "         | 25     | —              | —                | 1        | —             | —        | 12             | 20          | —          | 3           | 28                      | 5                   | 1                        | —                     | —              | —                   | 20         | 3                | 3                 | 21                     | 117    |
| 36      | Sept.     | 1      | 1              | —                | —        | —             | —        | 29             | 23          | —          | 12          | 21                      | 7                   | 1                        | —                     | —              | —                   | 18         | 1                | 6                 | 6                      | 125    |
| 37      | "         | 8      | 1              | —                | —        | —             | —        | 44             | 30          | —          | 5           | 21                      | 3                   | 1                        | —                     | —              | —                   | 15         | —                | 3                 | 12                     | 135    |
| 38      | "         | 15     | —              | —                | —        | —             | —        | 30             | 21          | —          | 5           | 19                      | 6                   | —                        | 1                     | —              | —                   | 12         | 4                | 4                 | 16                     | 118    |
| 39      | "         | 22     | —              | —                | —        | —             | 1        | 41             | 30          | —          | 5           | 22                      | 4                   | 1                        | —                     | 1              | —                   | 26         | 3                | 2                 | 9                      | 145    |
| 40      | "         | 29     | —              | —                | —        | —             | —        | 35             | 33          | —          | 10          | 22                      | 6                   | 1                        | —                     | 1              | —                   | 30         | 3                | 3                 | 8                      | 152    |
| 41      | Oct.      | 6      | —              | —                | —        | —             | —        | 26             | 34          | —          | 7           | 26                      | 3                   | 3                        | —                     | —              | —                   | 37         | —                | 3                 | 11                     | 150    |
| 42      | "         | 13     | —              | —                | 1        | —             | —        | 44             | 41          | —          | 11          | 30                      | 3                   | —                        | —                     | —              | —                   | 42         | 2                | 2                 | 9                      | 185    |
| 43      | "         | 20     | —              | —                | —        | —             | —        | 36             | 34          | —          | 11          | 23                      | 6                   | 1                        | —                     | —              | —                   | 62         | 1                | 8                 | 11                     | 193    |
| 44      | "         | 27     | —              | —                | —        | —             | —        | 48             | 40          | —          | 12          | 33                      | 4                   | —                        | —                     | —              | —                   | 52         | 2                | 2                 | 10                     | 203    |
| 45      | Nov.      | 3      | 1              | —                | —        | —             | —        | 37             | 32          | —          | 11          | 26                      | 5                   | —                        | —                     | —              | —                   | 36         | 1                | 3                 | 6                      | 158    |
| 46      | "         | 10     | —              | —                | —        | —             | —        | 36             | 30          | —          | 15          | 20                      | 6                   | 2                        | 1                     | —              | —                   | 29         | 1                | 2                 | 9                      | 151    |
| 47      | "         | 17     | —              | —                | —        | —             | —        | 35             | 36          | 1          | 19          | 27                      | 3                   | 1                        | 1                     | —              | —                   | 42         | 2                | 3                 | 8                      | 178    |
| 48      | "         | 24     | 1              | —                | —        | —             | —        | 26             | 39          | —          | 13          | 23                      | 6                   | 2                        | —                     | —              | —                   | 32         | 1                | 4                 | 9                      | 156    |
| 49      | Dec.      | 1      | —              | —                | —        | —             | —        | 43             | 39          | —          | 11          | 21                      | 5                   | —                        | 1                     | —              | —                   | 36         | —                | 3                 | 8                      | 167    |
| 50      | "         | 8      | 2              | —                | —        | —             | —        | 39             | 40          | —          | 21          | 24                      | 5                   | —                        | —                     | —              | —                   | 49         | 2                | 3                 | 8                      | 193    |
| 51      | "         | 15     | —              | —                | —        | —             | —        | 31             | 39          | —          | 15          | 14                      | 3                   | —                        | —                     | —              | —                   | 44         | 3                | 1                 | 7                      | 157    |
| 52      | "         | 22     | 1              | —                | —        | —             | —        | 35             | 42          | —          | 12          | 22                      | 2                   | 2                        | —                     | 1              | —                   | 71         | 1                | 3                 | 12                     | 204    |
| 53      | "         | 29     | —              | —                | —        | —             | —        | 30             | 20          | —          | 7           | 14                      | 1                   | —                        | —                     | —              | —                   | 63         | 1                | 4                 | 9                      | 149    |

TABLE VI.  
*Cases of Infectious Disease notified during the Year 1928. Classified according to ages.*

| DISEASE.                                  | AGES. |     |     |     |     |      |     |     |     |     |     |     |     | Totals. |     |     |      |
|---|-------|-----|-----|-----|-----|------|-----|-----|-----|-----|-----|-----|-----|---------|-----|-----|------|
|   | 0-    | 1-  | 2-  | 3-  | 4-  | 5-   | 10- | 15- | 20- | 25- | 35- | 45- | 55- |         | 65- | 75- | 85-  |
| Enteric Fever                             | —     | —   | —   | —   | —   | 3    | 1   | 2   | 7   | 4   | 2   | 1   | —   | —       | —   | —   | 20   |
| Continued Fever                           | —     | —   | —   | —   | —   | —    | —   | —   | —   | —   | —   | —   | —   | —       | —   | —   | —    |
| Malaria                                   | —     | —   | —   | —   | —   | —    | —   | —   | —   | 6   | 1   | 1   | —   | —       | —   | —   | 9    |
| Trench Fever                              | —     | —   | —   | —   | —   | —    | 2   | —   | 1   | —   | —   | —   | —   | —       | —   | —   | —    |
| Smallpox                                  | —     | —   | —   | —   | —   | —    | 263 | 93  | 39  | 3   | 4   | 9   | 17  | 15      | 3   | —   | 54   |
| Scarlet Fever                             | 5     | 29  | 75  | 96  | 129 | 725  | 263 | 93  | 39  | 43  | 17  | 5   | 1   | 1       | —   | —   | 1521 |
| Diphtheria                                | 16    | 57  | 82  | 89  | 102 | 640  | 257 | 110 | 80  | 76  | 29  | 11  | 1   | 2       | —   | —   | 1552 |
| Dysentery                                 | 1     | —   | 1   | 1   | 1   | 5    | 2   | —   | —   | 2   | 2   | —   | —   | —       | —   | —   | 15   |
| Erysipelas                                | 15    | 6   | 11  | 4   | 2   | 12   | 14  | 28  | 18  | 45  | 74  | 105 | 80  | 40      | 11  | 1   | 466  |
| Pulmonary Tuberculosis                    | 2     | 7   | 2   | 6   | 3   | 67   | 55  | 130 | 189 | 295 | 249 | 233 | 95  | 26      | 2   | —   | 1361 |
| Tuberculous Meningitis                    | 5     | 7   | 5   | 1   | 2   | 4    | 2   | 1   | 1   | 1   | 2   | 1   | 1   | —       | —   | —   | 33   |
| Tuberculosis of Peritoneum and Intestines | 1     | 3   | —   | —   | 3   | 18   | 5   | 8   | 4   | 2   | —   | —   | —   | —       | —   | —   | 44   |
| Tuberculosis of Spinal Column             | —     | 1   | 2   | 3   | 3   | 5    | —   | 3   | 3   | 6   | 2   | 3   | 1   | —       | —   | —   | 32   |
| Tuberculosis of Joints                    | —     | 1   | 1   | 1   | 4   | 8    | 5   | 4   | 4   | 2   | 1   | 1   | —   | —       | —   | —   | 32   |
| Tuberculosis of Other Organs              | —     | 3   | 3   | 1   | 5   | 27   | 10  | 15  | 8   | 6   | 5   | 1   | 4   | 1       | —   | —   | 89   |
| Disseminated Tuberculosis                 | 4     | 1   | —   | —   | 1   | 3    | 2   | —   | 2   | 1   | —   | 1   | —   | —       | —   | —   | 15   |
| Encephalitis Lethargica                   | —     | 1   | 1   | 2   | —   | 2    | 1   | 2   | 6   | 6   | 4   | 8   | 4   | 2       | 2   | —   | 41   |
| Cerebro-Spinal Fever                      | 4     | 3   | —   | —   | —   | 2    | 1   | —   | —   | —   | 2   | —   | —   | —       | —   | —   | 12   |
| Poliomyelitis                             | —     | 3   | —   | 1   | —   | 1    | —   | —   | —   | 1   | —   | —   | —   | —       | —   | —   | 6    |
| Polio-encephalitis                        | —     | —   | 1   | —   | —   | —    | —   | —   | —   | —   | —   | —   | —   | —       | —   | —   | 1    |
| Pneumonia                                 | 155   | 227 | 157 | 88  | 69  | 296  | 99  | 120 | 98  | 213 | 256 | 222 | 132 | 102     | 34  | 7   | 2275 |
| Puerperal Fever                           | —     | —   | —   | —   | —   | —    | —   | 3   | 15  | 45  | 20  | 1   | —   | —       | —   | —   | 84   |
| Puerperal Pyrexia                         | —     | —   | —   | —   | —   | —    | —   | 6   | 32  | 67  | 26  | 2   | —   | —       | —   | —   | 133  |
| Ophthalmia Neonatorum                     | 530   | —   | —   | —   | —   | —    | —   | —   | —   | —   | —   | —   | —   | —       | —   | —   | 530  |
| TOTAL                                     | 738   | 349 | 341 | 293 | 324 | 1818 | 719 | 525 | 508 | 824 | 696 | 605 | 336 | 189     | 52  | 8   | 8325 |

TABLE VII.

Cases of Infectious Diseases notified during the Year 1928. Classified according to Wards.

| DISEASE.                                  | Acoc's Green. | All Saints' | Aston. | Balsall Heath | Duddeston and Nechells | Edgbaston | Erdington (North) | Erdington (South) | Handsworth | Harborne | King's Norton | Ladywood | Lozells | Market Hall | Moseley and King's Heath | Northfield | Roton Park | St. Bartholomew's | St. Martin's and Deritend | St. Mary's | St. Paul's | Saltley | Sandwell | Selly Oak | Small Heath | Soho | Sparkbrook | Sparkhill | Washwood Heath | Yardley | Not located | City |    |
|---|---------------|-------------|--------|---------------|------------------------|-----------|-------------------|-------------------|------------|----------|---------------|----------|---------|-------------|--------------------------|------------|------------|-------------------|---------------------------|------------|------------|---------|----------|-----------|-------------|------|------------|-----------|----------------|---------|-------------|------|----|
| Enteric Fever ...                         | ...           | —           | —      | 2             | —                      | 3         | 1                 | —                 | —          | —        | —             | —        | 2       | —           | 3                        | —          | —          | 1                 | —                         | —          | 1          | —       | —        | —         | —           | —    | 1          | 1         | —              | —       | 4           | 20   |    |
| Continued Fever                           | ...           | —           | —      | —             | —                      | —         | —                 | —                 | —          | —        | —             | —        | —       | —           | —                        | —          | —          | —                 | —                         | 2          | —          | —       | —        | —         | —           | —    | —          | —         | —              | —       | —           | —    |    |
| Malaria ...                               | ...           | —           | 2      | —             | 2                      | 1         | —                 | —                 | —          | —        | —             | —        | —       | —           | —                        | —          | —          | —                 | —                         | —          | —          | 1       | —        | —         | —           | —    | 1          | —         | —              | —       | —           | 9    |    |
| Trench Fever                              | ...           | —           | —      | —             | —                      | —         | —                 | —                 | —          | —        | —             | —        | 1       | —           | —                        | —          | —          | 1                 | —                         | 1          | —          | —       | —        | —         | —           | —    | —          | —         | —              | —       | —           | —    |    |
| Smallpox                                  | ...           | —           | 1      | —             | —                      | —         | —                 | —                 | —          | —        | —             | —        | —       | —           | —                        | —          | —          | —                 | —                         | —          | —          | —       | —        | —         | —           | —    | —          | —         | —              | —       | —           | —    |    |
| Scarlet Fever                             | ...           | 85          | 59     | 27            | 35                     | 41        | 88                | 39                | 46         | 22       | 34            | 59       | 27      | 14          | 36                       | 42         | 104        | 37                | 77                        | 24         | 19         | 96      | 30       | 35        | 47          | 38   | 49         | 86        | 74             | 44      | 34          | 1521 |    |
| Diphtheria                                | ...           | 77          | 62     | 29            | 33                     | 31        | 46                | 30                | 38         | 21       | 38            | 65       | 48      | 16          | 22                       | 15         | 59         | 102               | 65                        | 49         | 74         | 64      | 82       | 25        | 37          | 52   | 61         | 46        | 51             | 42      | 47          | 1552 |    |
| Dysentery                                 | ...           | —           | 2      | —             | —                      | —         | 1                 | —                 | 1          | —        | —             | —        | —       | —           | 1                        | —          | 1          | 1                 | —                         | —          | 1          | —       | —        | —         | —           | —    | 19         | 15        | —              | 7       | 15          |      |    |
| Erysipelas                                | ...           | 8           | 13     | 14            | 69                     | 12        | 12                | 6                 | 5          | 2        | 8             | 11       | 13      | 7           | 2                        | 2          | 21         | 29                | 31                        | 23         | 13         | 18      | 5        | 8         | 15          | 12   | 19         | 15        | 14             | 24      | 466         |      |    |
| Pulmonary Tuberculosis                    | ...           | 30          | 65     | 72            | 99                     | 32        | 33                | 27                | 36         | 14       | 25            | 54       | 48      | 26          | 26                       | 15         | 54         | 70                | 107                       | 80         | 58         | 40      | 22       | 40        | 39          | 33   | 45         | 37        | 43             | 35      | 15          | 1361 |    |
| Tubercular Meningitis                     | ...           | —           | 1      | 1             | —                      | 1         | 2                 | 2                 | —          | —        | —             | —        | 1       | —           | 1                        | —          | 1          | 2                 | 4                         | 2          | 3          | 1       | —        | 2         | —           | —    | 1          | 3         | 2              | —       | —           | 33   |    |
| Tuberculosis of Peritoneum and Intestines | ...           | 3           | 1      | —             | 6                      | 1         | 5                 | 1                 | 1          | —        | 1             | 2        | 1       | —           | —                        | —          | 3          | 1                 | 1                         | 2          | 3          | 1       | 2        | 2         | —           | 3    | —          | 1         | —              | 3       | —           | 44   |    |
| Tuberculosis of Spinal Column             | ...           | 1           | 1      | —             | 1                      | 1         | 2                 | 1                 | —          | —        | —             | —        | —       | 1           | —                        | 1          | 2          | 3                 | 2                         | 1          | 1          | 3       | —        | —         | —           | 2    | 4          | —         | —              | —       | 3           | 32   |    |
| Tuberculosis of Joints                    | ...           | 1           | 1      | 2             | 4                      | 1         | —                 | 2                 | —          | —        | —             | —        | —       | —           | —                        | —          | —          | 1                 | 4                         | 3          | 2          | 1       | 1        | —         | —           | 1    | 1          | 3         | —              | 2       | —           | 32   |    |
| Tuberculosis of Other Organs              | ...           | 2           | 6      | 9             | 3                      | 3         | 2                 | 1                 | 4          | 2        | 1             | 4        | 5       | 2           | —                        | —          | 4          | 3                 | 3                         | 8          | 5          | 4       | 1        | 2         | 2           | —    | —          | 7         | 2              | 1       | 1           | 89   |    |
| Disseminated Tuberculosis                 | ...           | —           | —      | —             | —                      | —         | —                 | —                 | —          | —        | —             | —        | —       | —           | —                        | —          | —          | —                 | —                         | —          | —          | —       | —        | —         | —           | —    | —          | —         | —              | —       | —           | —    |    |
| Encephalitis Lethargica                   | ...           | 2           | 1      | 1             | —                      | —         | —                 | —                 | 2          | —        | —             | —        | —       | —           | —                        | —          | —          | 2                 | 1                         | —          | —          | —       | —        | —         | —           | —    | 1          | 1         | 2              | 1       | —           | 15   |    |
| Cerebro-Spinal Fever                      | ...           | 1           | 1      | 2             | 4                      | 2         | 2                 | 1                 | 1          | —        | 1             | —        | 1       | 1           | 1                        | —          | —          | 3                 | 2                         | 1          | 2          | 2       | 1        | 1         | 1           | —    | 4          | 4         | —              | 2       | —           | 41   |    |
| Poliomyelitis                             | ...           | —           | 1      | 1             | 1                      | —         | —                 | —                 | —          | —        | —             | 2        | 1       | 1           | 1                        | —          | 1          | 1                 | —                         | 2          | —          | 1       | —        | —         | —           | 1    | —          | —         | —              | —       | —           | 12   |    |
| Polio-encephalitis                        | ...           | —           | 1      | —             | —                      | —         | —                 | —                 | —          | —        | —             | —        | —       | 1           | 1                        | —          | —          | —                 | —                         | 1          | —          | —       | —        | —         | —           | —    | —          | —         | —              | —       | —           | 6    |    |
| Pneumonia                                 | ...           | 67          | 102    | 154           | 216                    | 58        | 71                | 34                | 23         | 20       | 32            | 115      | 47      | 41          | 51                       | 13         | 120        | 116               | 129                       | 179        | 139        | 106     | 14       | 34        | 78          | 22   | 59         | 58        | 50             | 42      | 33          | 2275 |    |
| Puerperal Fever                           | ...           | 5           | 4      | 3             | 8                      | 2         | 2                 | —                 | 1          | —        | 3             | 2        | 1       | 3           | 4                        | —          | 2          | 3                 | 5                         | 3          | 7          | 6       | 1        | 1         | 1           | 2    | —          | 4         | 5              | 2       | 3           | 1    | 84 |
| Puerperal Pyrexia                         | ...           | 4           | 2      | 5             | 14                     | 4         | 4                 | 1                 | 1          | 2        | 1             | 7        | 5       | 2           | 6                        | 2          | 4          | 8                 | 8                         | 7          | 6          | 2       | 5        | 3         | 3           | —    | 4          | 6         | 3              | 2       | 2           | 133  |    |
| Ophthalmia Neonatorum                     | ...           | 13          | 15     | 25            | 49                     | 5         | 9                 | 2                 | 8          | 1        | 2             | 17       | 23      | 6           | 7                        | —          | 20         | 56                | 29                        | 26         | 25         | 42      | 9        | 4         | 22          | 12   | 28         | 15        | 20             | 14      | 2           | 530  |    |
| TOTAL ...                                 | 299           | 412         | 414    | 210           | 544                    | 198       | 281               | 147               | 167        | 84       | 146           | 338      | 224     | 122         | 161                      | 90         | 396        | 440               | 469                       | 414        | 359        | 388     | 174      | 157       | 249         | 177  | 282        | 288       | 265            | 210     | 220         | 8325 |    |

No cases of Infectious Disease occurred in Perry Barr Ward.

TABLE VIII.  
*Temperature of the Air and Ground, Rainfall, Sunshine, and Wind in each Month of the Year 1928.*  
*Observed at the Birmingham and Midland Institute Observatory, Edgbaston,*  
*by Mr. A. J. Kelley.*

| MONTH. | TEMPERATURE OF THE AIR.               |       |                                      |       | TEMPERATURE OF THE GROUND.   |       | HOURS OF SUNSHINE.           |                      | RAINFALL IN INCHES.          |                              | DAYS ON WHICH 0.01 INCH OR MORE OF RAIN FELL. | MILES OF WIND. |                              |      |       |
|--------|---------------------------------------|-------|--------------------------------------|-------|------------------------------|-------|------------------------------|----------------------|------------------------------|------------------------------|---|----------------|------------------------------|------|-------|
|        | Highest in the Shade.                 |       | Lowest in the shade.                 |       | Mean for the Month.          |       | Max. at 1 foot deep.         | Max. at 4 feet deep. | 1928.                        | Above or below the average.* |   | 1928.          | Above or below the average.* |      |       |
|        |                                       |       |                                      |       |                              |       |                              |                      |                              |                              |   |                |                              |      |       |
|        |                                       |       |                                      |       |                              |       |                              |                      |                              |                              |   |                |                              |      |       |
| 1928.  | Above or below the previous highest.* | 1928. | Above or below the previous lowest.* | 1928. | Above or below the average.* | 1928. | Above or below the average.* | 1928.                | Above or below the average.* | 1928.                        | Above or below the average.*                  |                |                              |      |       |
| JAN.   | 54°                                   | — 4   | 27°                                  | + 16  | 40.4°                        | + 2.1 | 44.0°                        | 44.3                 | 54                           | + 20                         | 4.81  | + 2.71         | 24                           | 9484 | — 888 |
| FEB.   | 53                                    | — 9   | 30                                   | + 22  | 42.2                         | + 3.9 | 45.3                         | 44.8                 | 55                           | + 8                          | 2.25  | + 0.45         | 14                           | 8483 | — 944 |
| MAR.   | 64                                    | — 6   | 24                                   | + 5   | 43.0                         | + 3.4 | 45.2                         | 44.9                 | 61                           | — 14                         | 2.26  | + 0.35         | 19                           | 6622 | —3850 |
| APR.   | 72                                    | — 7   | 29                                   | + 3   | 46.7                         | + 2.1 | 48.3                         | 45.2                 | 122                          | —                            | 1.49  | — 0.26         | 18                           | 7164 | —2227 |
| MAY    | 75                                    | — 7   | 35                                   | + 4   | 51.3                         | — 0.5 | 54.3                         | 47.4                 | 116                          | — 44                         | 0.05  | — 2.15         | 9                            | 6781 | —1948 |
| JUNE   | 75                                    | — 10  | 39                                   | + 1   | 55.2                         | — 2.3 | 53.7                         | 50.4                 | 184                          | + 30                         | 3.01  | + 0.95         | 19                           | 7493 | — 757 |
| JULY   | 83                                    | — 9   | 44                                   | + 5   | 61.8                         | + 2.4 | 60.3                         | 54.1                 | 237                          | + 84                         | 1.27  | — 1.22         | 8                            | 7351 | — 896 |
| AUG.   | 76                                    | — 18  | 48                                   | + 7   | 59.8                         | + 0.5 | 57.5                         | 54.3                 | 191                          | + 46                         | 1.80  | — 1.10         | 14                           | 6909 | —1489 |
| SEPT.  | 79                                    | — 12  | 47                                   | + 15  | 55.5                         | —     | 57.8                         | 54.6                 | 155                          | + 46                         | 0.65  | — 1.33         | 8                            | 5289 | —2734 |
| OCT.   | 65                                    | — 14  | 33                                   | + 5   | 50.0                         | + 1.2 | 52.4                         | 52.6                 | 103                          | + 27                         | 4.71  | + 2.02         | 22                           | 7615 | —1266 |
| NOV.   | 58                                    | — 4   | 32                                   | + 12  | 45.2                         | + 2.7 | 49.7                         | 50.5                 | 49                           | + 4                          | 3.69  | + 1.44         | 22                           | 9130 | — 49  |
| DEC.   | 54                                    | — 3   | 21                                   | + 7   | 37.6                         | — 1.7 | 46.5                         | 48.3                 | 30                           | + 8                          | 1.94  | — 0.80         | 13                           | 7065 | —3394 |

\*In the forty-one years 1887-1927.

TABLE IX.

*Meteorology and Mortality in each week of the year 1928.*

| WEEK. |         |       | Total Deaths. | Deaths under 1 year. | Deaths 65 and up. | DEATHS FROM |                 |                                  |                         |                              |                       |                   | TEMPERATURE      |                                  |           |                      |      | Horizontal Movement of Air in Miles. | Hours of Sunshine. | Rainfall in Inches. |
|-------|---------|-------|---------------|----------------------|-------------------|-------------|-----------------|----------------------------------|-------------------------|------------------------------|-----------------------|-------------------|------------------|----------------------------------|-----------|----------------------|------|--------------------------------------|--------------------|---------------------|
| No.   | Ending. | 1928. |               |                      |                   | Measles.    | Whooping Cough. | Diarrhoea and Enteritis under 2. | Pulmonary Tuberculosis. | Other Forms of Tuberculosis. | Respiratory Diseases. | of the Air.       |                  |                                  | of Ground |                      |      |                                      |                    |                     |
|       |         |       |               |                      |                   |             |                 |                                  |                         |                              |                       | Highest in Shade. | Lowest in Shade. | Mean of Daily Maxima and Minima. |           | Highest 4 feet Deep. |      |                                      |                    |                     |
| 1     | Jan.    | 7     | 329           | 30                   | 138               | —           | 3               | 6                                | 17                      | 3                            | 78                    | 54°               | 27°              | 33°                              | 44.2°     | 2172                 | 3.5  | 0.93                                 |                    |                     |
| 2     | "       | 14    | 289           | 33                   | 103               | —           | 1               | 3                                | 26                      | 5                            | 56                    | 49                | 33               | 42                               | 43.8      | 2194                 | 14.3 | 0.74                                 |                    |                     |
| 3     | "       | 21    | 256           | 23                   | 110               | —           | —               | 4                                | 22                      | 2                            | 53                    | 54                | 33               | 41                               | 44.1      | 2031                 | 13.6 | 1.60                                 |                    |                     |
| 4     | "       | 28    | 243           | 34                   | 93                | —           | —               | 5                                | 19                      | 8                            | 43                    | 51                | 32               | 40                               | 44.3      | 2367                 | 15.4 | 0.97                                 |                    |                     |
| 5     | Feb.    | 4     | 230           | 34                   | 94                | —           | —               | 4                                | 8                       | 2                            | 35                    | 49                | 32               | 39                               | 44.3      | 2146                 | 15.4 | 0.98                                 |                    |                     |
| 6     | "       | 11    | 225           | 26                   | 89                | —           | 1               | 2                                | 25                      | —                            | 41                    | 51                | 34               | 42                               | 44.4      | 2727                 | 12.9 | 0.83                                 |                    |                     |
| 7     | "       | 18    | 225           | 25                   | 75                | —           | 1               | 3                                | 18                      | 4                            | 36                    | 53                | 35               | 44                               | 44.6      | 2345                 | 10.0 | 0.77                                 |                    |                     |
| 8     | "       | 25    | 206           | 15                   | 78                | —           | 2               | 1                                | 21                      | 6                            | 27                    | 53                | 32               | 41                               | 44.7      | 1156                 | 12.6 | 0.00                                 |                    |                     |
| 9     | Mar.    | 3     | 198           | 17                   | 83                | —           | 1               | 1                                | 13                      | 2                            | 29                    | 56                | 30               | 43                               | 44.8      | 1219                 | 20.8 | 0.58                                 |                    |                     |
| 10    | "       | 10    | 221           | 16                   | 92                | 1           | 7               | 2                                | 13                      | 3                            | 46                    | 64                | 30               | 43                               | 44.9      | 1141                 | 14.0 | 0.02                                 |                    |                     |
| 11    | "       | 17    | 242           | 20                   | 91                | —           | 7               | 4                                | 18                      | 4                            | 41                    | 55                | 25               | 36                               | 44.9      | 1462                 | 8.5  | 0.17                                 |                    |                     |
| 12    | "       | 24    | 239           | 21                   | 88                | 1           | 2               | 1                                | 18                      | 1                            | 43                    | 57                | 34               | 47                               | 44.4      | 1887                 | 12.4 | 0.92                                 |                    |                     |
| 13    | "       | 31    | 221           | 23                   | 88                | —           | 3               | 3                                | 21                      | 3                            | 38                    | 57                | 34               | 44                               | 44.5      | 1745                 | 24.9 | 0.77                                 |                    |                     |
| 14    | April   | 7     | 215           | 30                   | 79                | —           | 6               | 3                                | 16                      | 4                            | 43                    | 56                | 35               | 45                               | 44.7      | 1445                 | 32.6 | 0.39                                 |                    |                     |
| 15    | "       | 14    | 224           | 24                   | 83                | 2           | 3               | 4                                | 18                      | 2                            | 36                    | 64                | 37               | 49                               | 44.8      | 1856                 | 17.7 | 0.89                                 |                    |                     |
| 16    | "       | 21    | 220           | 31                   | 88                | 1           | 4               | 4                                | 9                       | 4                            | 38                    | 48                | 29               | 38                               | 45.0      | 1904                 | 32.9 | 0.14                                 |                    |                     |
| 17    | "       | 28    | 226           | 23                   | 89                | —           | 3               | 5                                | 22                      | 3                            | 33                    | 72                | 31               | 52                               | 44.7      | 1478                 | 30.2 | 0.01                                 |                    |                     |
| 18    | May     | 5     | 189           | 20                   | 66                | —           | 8               | 3                                | 12                      | 3                            | 21                    | 70                | 44               | 54                               | 46.0      | 1591                 | 31.8 | 0.09                                 |                    |                     |
| 19    | "       | 12    | 159           | 14                   | 54                | —           | 10              | 1                                | 12                      | 1                            | 22                    | 70                | 35               | 49                               | 46.8      | 1280                 | 44.1 | 0.00                                 |                    |                     |
| 20    | "       | 19    | 205           | 18                   | 70                | 1           | 6               | 1                                | 18                      | 1                            | 31                    | 59                | 37               | 47                               | 46.8      | 1714                 | 15.6 | 0.26                                 |                    |                     |
| 21    | "       | 26    | 214           | 28                   | 80                | 1           | 8               | 1                                | 18                      | 1                            | 35                    | 66                | 37               | 49                               | 46.7      | 1647                 | 17.5 | 0.15                                 |                    |                     |
| 22    | June    | 2     | 203           | 21                   | 70                | 4           | 7               | 1                                | 19                      | 2                            | 32                    | 75                | 44               | 59                               | 48.0      | 1721                 | 32.5 | 0.00                                 |                    |                     |
| 23    | "       | 9     | 198           | 12                   | 71                | —           | 4               | 1                                | 21                      | 1                            | 35                    | 72                | 42               | 57                               | 49.5      | 1389                 | 42.2 | 1.00                                 |                    |                     |
| 24    | "       | 16    | 189           | 24                   | 68                | —           | 3               | 1                                | 20                      | 3                            | 27                    | 75                | 41               | 53                               | 49.7      | 1768                 | 48.9 | 0.88                                 |                    |                     |
| 25    | "       | 23    | 195           | 14                   | 78                | 4           | 6               | —                                | 13                      | —                            | 24                    | 68                | 39               | 55                               | 49.7      | 1588                 | 38.8 | 0.32                                 |                    |                     |
| 26    | "       | 30    | 197           | 23                   | 62                | 3           | 7               | 3                                | 26                      | 4                            | 19                    | 68                | 46               | 56                               | 50.4      | 2057                 | 38.2 | 0.81                                 |                    |                     |
| 27    | July    | 7     | 180           | 20                   | 63                | 2           | 3               | 2                                | 17                      | 2                            | 18                    | 68                | 45               | 57                               | 50.6      | 1804                 | 31.9 | 0.15                                 |                    |                     |
| 28    | "       | 14    | 176           | 19                   | 70                | —           | 4               | 1                                | 12                      | 2                            | 22                    | 81                | 48               | 63                               | 51.6      | 1633                 | 79.8 | 0.01                                 |                    |                     |
| 29    | "       | 21    | 152           | 19                   | 50                | —           | 3               | 2                                | 16                      | 2                            | 15                    | 83                | 52               | 65                               | 53.3      | 1742                 | 71.8 | 0.00                                 |                    |                     |
| 30    | "       | 28    | 183           | 17                   | 64                | 2           | 5               | 5                                | 14                      | 5                            | 17                    | 77                | 50               | 64                               | 54.0      | 1568                 | 34.9 | 0.03                                 |                    |                     |
| 31    | Aug.    | 4     | 171           | 26                   | 61                | 1           | 7               | —                                | 12                      | 3                            | 17                    | 68                | 44               | 56                               | 54.1      | 1373                 | 44.4 | 1.09                                 |                    |                     |
| 32    | "       | 11    | 170           | 20                   | 66                | 1           | 3               | 8                                | 8                       | 2                            | 23                    | 76                | 51               | 62                               | 53.8      | 1599                 | 44.0 | 0.25                                 |                    |                     |
| 33    | "       | 18    | 181           | 11                   | 64                | —           | 6               | 1                                | 13                      | 2                            | 16                    | 70                | 50               | 60                               | 54.1      | 1696                 | 50.8 | 0.14                                 |                    |                     |
| 34    | "       | 25    | 144           | 14                   | 44                | —           | 4               | 3                                | 12                      | 1                            | 12                    | 71                | 49               | 61                               | 54.2      | 1672                 | 30.9 | 0.68                                 |                    |                     |
| 35    | Sept.   | 1     | 167           | 20                   | 54                | —           | —               | 5                                | 12                      | 3                            | 15                    | 69                | 49               | 59                               | 54.3      | 1269                 | 48.2 | 0.70                                 |                    |                     |
| 36    | "       | 8     | 161           | 25                   | 58                | 3           | 3               | 9                                | 15                      | 2                            | 11                    | 79                | 49               | 62                               | 54.5      | 1525                 | 57.2 | 0.22                                 |                    |                     |
| 37    | "       | 15    | 160           | 16                   | 59                | 1           | 3               | 3                                | 9                       | 2                            | 17                    | 69                | 46               | 58                               | 54.6      | 959                  | 36.4 | 0.10                                 |                    |                     |
| 38    | "       | 22    | 162           | 23                   | 52                | 1           | 3               | 13                               | 11                      | 2                            | 10                    | 66                | 41               | 54                               | 54.5      | 1129                 | 32.5 | 0.03                                 |                    |                     |
| 39    | "       | 29    | 194           | 20                   | 66                | 1           | 1               | 5                                | 16                      | 2                            | 18                    | 61                | 38               | 49                               | 54.0      | 1388                 | 12.9 | 0.30                                 |                    |                     |
| 40    | Oct.    | 6     | 177           | 24                   | 77                | 1           | 2               | 6                                | 10                      | 2                            | 21                    | 60                | 33               | 49                               | 52.9      | 1208                 | 35.6 | 0.43                                 |                    |                     |
| 41    | "       | 13    | 190           | 17                   | 86                | 4           | —               | 4                                | 14                      | 2                            | 18                    | 65                | 37               | 52                               | 52.3      | 1436                 | 20.3 | 1.03                                 |                    |                     |
| 42    | "       | 20    | 213           | 25                   | 62                | 1           | 1               | 4                                | 14                      | 2                            | 37                    | 61                | 39               | 51                               | 52.0      | 1838                 | 17.6 | 1.45                                 |                    |                     |
| 43    | "       | 27    | 187           | 17                   | 73                | —           | 1               | 1                                | 18                      | 1                            | 18                    | 56                | 37               | 48                               | 51.6      | 2141                 | 22.7 | 1.71                                 |                    |                     |
| 44    | Nov.    | 3     | 187           | 15                   | 70                | 1           | 3               | 2                                | 17                      | 1                            | 20                    | 54                | 35               | 46                               | 50.8      | 1876                 | 21.0 | 0.31                                 |                    |                     |
| 45    | "       | 10    | 201           | 17                   | 71                | —           | 1               | —                                | 19                      | 5                            | 19                    | 50                | 32               | 40                               | 50.3      | 1216                 | 9.6  | 0.23                                 |                    |                     |
| 46    | "       | 17    | 166           | 14                   | 65                | —           | 2               | 2                                | 13                      | 1                            | 19                    | 58                | 39               | 49                               | 49.2      | 2314                 | 16.6 | 1.30                                 |                    |                     |
| 47    | "       | 24    | 193           | 11                   | 87                | —           | —               | 1                                | 13                      | 3                            | 25                    | 58                | 40               | 49                               | 49.2      | 2696                 | 6.8  | 1.31                                 |                    |                     |
| 48    | Dec.    | 1     | 189           | 24                   | 77                | 1           | 2               | 1                                | 13                      | —                            | 22                    | 54                | 33               | 44                               | 49.0      | 2515                 | 10.1 | 0.62                                 |                    |                     |
| 49    | "       | 8     | 220           | 32                   | 79                | —           | 1               | 9                                | 16                      | —                            | 29                    | 51                | 30               | 39                               | 48.1      | 1259                 | 15.1 | 0.02                                 |                    |                     |
| 50    | "       | 15    | 205           | 18                   | 81                | 1           | 1               | 2                                | 21                      | 3                            | 12                    | 38                | 21               | 33                               | 47.5      | 1496                 | 2.9  | 0.23                                 |                    |                     |
| 51    | "       | 22    | 260           | 23                   | 98                | 2           | 1               | 4                                | 24                      | 2                            | 46                    | 47                | 29               | 38                               | 46.2      | 1518                 | 4.5  | 0.44                                 |                    |                     |
| 52    | "       | 29    | 250           | 18                   | 124               | —           | 2               | 1                                | 17                      | —                            | 45                    | 54                | 32               | 39                               | 45.5      | 1781                 | 7.4  | 0.83                                 |                    |                     |

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